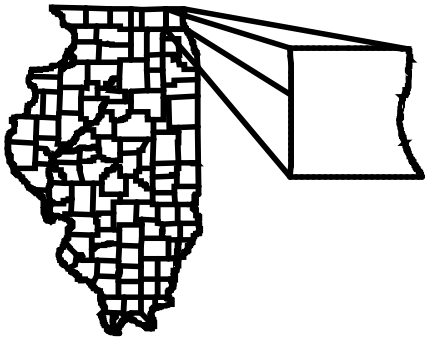
Lake County Community MAPP Assessments

Mobilizing for Action through Planning and Partnerships



1. **Community Health Status Assessment (CHSA)**
2. Community Themes and Strengths Assessment (CTSA)
3. Forces of Change Assessment (FOCA)
4. Local Public Health System Assessment (LPHSA)

Lake County, Illinois
2012

LakeCounty
Health Department and
Community Health Center

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Executive Summary

This Community Health Status Assessment (CHSA) report is an important tool, serving to give a comprehensive, multi-sectoral, county-wide assessment of the health status of Lake County. Within the report, it is our aim to provide as much data as possible that is both local to the Lake County community and as current as possible. We believe that the community health assessments provided within this report will be strategic in identifying the most impacting health improvements for all of the people of Lake County.

The report has 12 sections, each of which provides important perspectives and measures to understand the community's health in a comprehensive manner. The section by section breakdown of the report is:

Section #	Section Title
I	Some General Attributes of Lake County's Population and their Health-Related Characteristics
II	An Evaluation of Progress Toward the Community Health Improvement Goals from the 2006 Illinois Project for Local Assessment of Needs (IPLAN)
III	Births and Birth Outcomes / Maternal, Fetal, and Infant Health
IV	Youth Health Behaviors
V	Environmental Health
VI	Built Environment
VII	Community Safety
VIII	Behavioral Health
IX	Infectious Diseases
X	Mortality Rates and Stratified Incidence Rates
XI	Age-Stratified Hospital/ER and Other Local Data
XII	Chronic Conditions, Ambulatory Care Sensitive Conditions, and Hospital Usage Data

Section I includes demographic information for Lake County, including various statistical breakdowns of the 2010 Census data for the 703,462 people who reside in the county. Stratification of data is introduced, as assessment of subpopulations (by age, gender, race/ethnicity, etc.) of the county can help shape our understanding of various social determinants of health and vulnerable populations and subpopulations. Healthy People (HP) 2020 national objectives for health are introduced and National and Lake County data are compared with HP 2020 goals. At the close of this section is a note regarding the importance of considering multiple factors with regard to contributors to death. Factors such as tobacco, diet, activity, and alcohol contribute to deaths due to heart disease, cancers, or infant deaths.

Section II reviews the 2006 IPLAN health improvement goals, providing updated information and comparative data in relation to baselines and HP 2010 targets. The most recent mortality data is from 2007. The baseline data for the non-mortality measures are from the Behavioral Risk Factor Surveillance Survey (BRFSS) conducted in 2003. The current measures are from the 2009 BRFSS. The specific 2006 health improvement goals reported are: Cancer Reduction and Prevention, Obesity Reduction and Prevention, and Unintentional Injuries of various types.

Section III references several important birth outcome measures, comparing Lake County measures to National measures and also to HP 2020 targets. Number of births for all Lake County communities from 2004-2008 are listed. And this section provides a significant amount of opportunity to observe the significant differences in birth outcomes between racial or ethnic groups. Along with race/ethnicity comparatives, the variables of mother's age, marital status, and pre-natal care are considered.

Section IV gives an important overview of the health status of the youth of Lake County. Data related to weight, nutrition, physical activity, screen time, and the usage of alcohol, tobacco, and other drugs are taken from student responses to the Illinois Youth Survey (IYS), which was administered by school districts in Lake County in 2006, 2008, and 2010. The age levels of the students surveyed are 6^{th}, 8^{th}, 10^{th}, and 12^{th} grade. Comparisons are shared between these ages. With regard to usage of alcohol, tobacco, and other drugs, students are asked to describe not only their own usage, but also their perceptions of the harm of usage and the ease of access of various substances.

Section V provides a comprehensive report regarding various measures related to the quality of the water, air, and food of Lake County, as well as other important environmental factors in the county, such as landfill monitoring, blood lead levels, and the prevention of rabies and West Nile Virus (WNV). The benefits of inspections, sampling, and surveillance are observed in the data. The purpose of this section is to highlight the ways that various biological, chemical, and physical agents pose risks to the public's health. And these various measures are considered here.

Section VI gives important consideration to the fact that, though the population of Lake County has grown by almost 200,000 residents over the past 20 years, the physical composition of the 52 municipalities within the county has not changed significantly. Accessibility to options for physical activity and healthy eating is examined. And the proximity of schools and homes to various community entities is weighed. How the overall environment of communities is situated to meet the health needs of residents is expressed in several relevant measures. Also, some introductory consideration is given to the impact of the overall environment of the community upon mental health.

Section VII continues to expand our thinking about the comprehensive and dynamic nature of community health. Definitions of community safety are considered and measures from Lake County Uniform Crime Reports (UCR) data are shared. Law enforcement capacity, adult probation successes, and juvenile justice treatment statistics are included. The location of Emergency Response teams in the county is also provided. Information related to unintentional accidents would be appropriate for inclusion within this section. However, because this information was shared as part of the review of Section II, it is not duplicated here.

Section VIII defines Behavioral Health as encompassing mental health, mental illness, substance abuse, and substance abuse disorders. National trends related to mental health and mental illness are considered. Also included is recent Lake County data related to mental health diagnoses and alcohol/drug abuse and dependence. Challenges within the field of Behavioral Health service provision are mentioned. And within this section, the impact of social disparities is considered. Waukegan is mentioned as an example of need related to mental health, substance abuse, domestic violence, housing, and other services. Ultimately, this section provides another important window of perspective, underscoring the holistic nature of the health of an individual and the health of a community.

Section IX begins by giving consideration to trends in infectious disease mortality over the past century. Recent Lake County communicable disease rates are shared and specific focused attention is given to the most common reportable infections, including Salmonellosis, Pertussis, Giardiasis, and Shigellosis (Dysentery). Antibiotic-resistant infections (MRSA), newly emerging diseases, re-emerging diseases, pandemic influenza, and sexually transmitted infections (STIs) are also discussed. Tuberculosis (TB) data is also shared.

Section X gives a detailed report of mortality rates in Lake County related to cancer, heart disease, cerebrovascular disease, chronic lower respiratory disease, and dementia (including Alzheimer's Disease). For each of these causes of death, a breakdown is provided via mapping regarding which communities of Lake County have death rates that are above the county's median rate and which have death rates below the median. Also included in this section is a look at recent disease incident rates, with race/ethnicity, gender, and disease type being considered.

Section XI breaks the residents of Lake County into 10 age groups (0-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, and 85+) and examines recent hospital and ER admissions data for each age group. Based on this data, the 5 most common reasons for hospital/ER admissions for each age group are listed. Along with this hospital/ER admissions data, other community efforts and measures specific to the 10 age groups is shared in this section.

Section XII takes in in-depth look at hospital usage by Lake County residents, especially as this hospital usage relates to chronic diseases, such as congestive heart failure, chronic lung disease, cancer, and coronary artery disease. Chronic disease related hospitalization rates within Lake County are mapped by zip code. Also considered is hospital usage related to ambulatory sensitive conditions, such as COPD, asthma (adult and pediatric), urinary tract infections, and hypertension. Ambulatory sensitive condition hospitalization rates within Lake County are mapped by zip code.

With the use of 47 tables, 81 figures, and 18 maps, this Lake County Community Health Status Assessment report provides many vivid illustrations of the local, current data related to the health status of the people and places, the community and the environment of Lake County.

Introduction: The Overall MAPP Process and the Community Health Status Assessment

As part of the overall approach to strategic community health improvement planning, Lake County has embarked on a community based approach called MAPP, which stands for Mobilizing for Action through Planning and Partnerships. MAPP is a tool which "helps communities improve health and quality of life through community-wide and community-driven strategic planning." By following this approach, collaboration is sought by a broad representation of persons who share the commitment to and have a role in the community's health and overall well-being.

Within the overall MAPP process, there are four main assessment tools utilized. One of these assessment tools is called the Community Health Status Assessment (CHSA). The CHSA answers the questions: *"How healthy are our residents?"* and *"What does the health status of our community look like?"* During this assessment, information regarding health status, quality of life, and risk factors in the community is gathered and analyzed.

The CHSA is a crucial component of the MAPP process in that "the data gathered serves as the foundation for analyzing and identifying community health issues and determining where the community stands in relation to peer communities, state data, and national data."

Within this Lake County CHSA report, it is our aim to provide as much data as possible that is both local to the Lake County community and as current as possible. We have taken a comprehensive perspective of the health status of our community and we believe that a multi-sectoral and a cross-sectoral perspective of community health is essential to see the most impacting health improvements for all of the people of Lake County.

Additional information to accompany these introductory comments may be found in the document entitled "Achieving Healthier Communities through MAPP: A User's Handbook," published by the National Association of County & City Health Officials (NACCHO).

Section I: Some General Attributes of Lake County's Population and their Health-Related Characteristics

Demographics

Based on US Bureau of the Census, Lake County had a total 2010 population of 703,462 comprised of roughly equal proportions of females (352,343) and males (351,119) with a median age of 36.7 years. This represents a growth of 10.6% (about 1% per year) in total population relative to the 2000 census. Approximately 30.4% of the population is 19 or younger and 10.4% is 65 years and older. By race/ethnicity, the county population is 75.1% White; 7% African American; 6.3% Asian; less than 0.5% American Indian and Alaska Native or Native Hawaiian and Other Pacific Islander, and 8% Other. Approximately 19.9% of this population is Hispanic (who may be of any racial group). The most remarkable proportional changes relative to the 2000 census are a 4.5% decrease in the population proportion of non-Hispanic White individuals and a 5.5% increase in the population proportion of Hispanic individuals.

Table 1.1 Demographic Information for Lake County and Illinois

Demographic	Lake County	Illinois
Persons under 18 years old, 2010	27.4%	24.4%
Persons 65 and older, 2010	10.4%	12.5%
White, 2010	75.1%	71.5%
Black, 2010	7.0%	14.5%
Hispanic or Latino origin, 2010	19.9%	15.8%
Asian, 2010	6.3%	4.6%
Non-Hispanic White, 2010	65.2%	63.7%
Median household income, 2008	$78,617	$56,230
Persons below the poverty level, 2008	7.6%	12.2%

Source: US Bureau of the Census (2010).

Approximately 82% of this population are native born (60% of these were born in Illinois) and 18% foreign born. Among those five years old and older, 27% speak languages other than English at home. Of these, 63% percent speak Spanish and 37% some other language. About 41% reported that they did not speak English "very well."

With regard to education, the total school enrollment in Lake County was 214,000 in 2009. Nursery school and kindergarten enrollment was 28,000 and elementary or high school enrollment was 135,000. College or graduate school enrollment was 52,000. In terms of educational attainment in the general population, roughly 88% of people 25+ years of age had at least graduated from high school and 40% had earned a bachelor's degree or higher. Finally, about 12% reported they had not graduated from high school and were not currently enrolled in school.

Among people 5 years of age and older, 7% reported having a disability. The probability of having a disability varied (by age), from about 3% of people 5 to 15 years old; 5% of people 16 to 64 years old, and 29% of those 65 and older.

The median household income was $76,322 with 85% of households receiving employment-related or other earnings and 15% receiving retirement income other than Social Security. About 23% of households receive Social Security benefits which, on average amounted to about $17,338 annually. The reader will please note that these income sources are not mutually exclusive and some households received income from more than one source. In 2009, approximately 7% of the county's population was living at or below the poverty level. This included about 10% of related children under 18, as well as, 5% of people 65+. Finally, 5% of all families and 20% of families with a female head-of-household had incomes below the poverty level.

The population of Lake County is somewhat younger when compared to Illinois, better educated, a higher median income and a lower percentage of persons below the poverty level, and has a slightly larger proportion of residents of Hispanic or Latino ethnicity.

Summary Measures of Health

Total life expectancy, the average number of years an individual is expected to live, is an important summary measure for comparing death rates within and between racial and ethnic groups and over time. The term "life expectancy" is generally used to refer to expectations of life at birth, the average number of years of life that a newborn infant is expected to live.

Table 1.2 Total Life Expectancy and Disability-free Life Expectancy by Gender and Ethnicity

Life Expectancy	Total Population	Males	Females	White	African American	Hispanic
Total	79.3	77.5	81.0	80.4	79.8	N/A
Disability-Free	61.4	65.0	68.0	60.9	47.1	N/A

Sources: IDPH Vital Records; US Bureau of the Census.

Disability-Free life expectancy is the average number of years an individual is expected to live free of disability if current patterns of mortality and disability continue to apply. This indicator has been developed in a number of Organization for Economic Cooperation and Development (OECD) countries since the 1970's. Disability-free life expectancy might be differentiated into:

- functional limitation-free life expectancy, and
- activity restriction-free life expectancy

The Behavioral Risk Factor Surveillance Survey (BRFSS) results cited below are the results of a telephonic survey conducted with 415 Lake County adults. The BRFSS is a state-based program that gathers information on risk factors among Illinois adults 18 years of age and older through monthly telephone surveys. Established in 1984 as a collaboration between the U.S. Centers for Disease Control and Prevention (CDC) and state health departments, the BRFSS has grown to be the primary source of information on behaviors and conditions related to the leading causes of death for adults in the general population.

The IDPH web site that provides BRFSS data presents the data by county or for the state. It also presents data for five strata: Chicago, suburban Cook, collar counties, urban counties, and rural counties. The strata permit comparisons with other geographic areas that share demographic characteristics and assist in interpreting the results. The self-rated health status survey responses are rolled up for all of the five collar counties, counties bordering Cook County (see Table 1.3). The Adult Use of preventive Services is presented for each of those counties individually (see Table 1.4).

Table 1.3 Behavior Risk Factor Surveillance Survey, Lake County (2009)

Behavioral Risk Factor	Lake County	Collar Counties*
Self Rated Health Status		
Number of Days Mental Health not good in the Last 1 to 7 days	26.0%	24.0%
Number of Days Mental Health not good in the Last 8 to 30 days	12.1%	12.8%
Number of Days Physical Health not good in the Last 1 to 7 days	22.4%	26.5%
Number of Days Physical Health not good in the Last 8 to 30 days	11.2%	11.4%
Adult Preventive Service Use		
No Routine Medical Checkup in the last year	33.3%	34.0%
No Pneumonia Vaccine	73.6%	80.2%
No Flu Vaccine in the last year	69.2%	64.4%
Risk Factors for Premature Death		
No Exercise	16.5%	20.1%
Few Fruits/Vegetables	19.1%	45.2%
Obesity	18.6%	23.4%
High Blood Pressure	24.5%	24.4%
Current Smoker	14.3%	14.3%
Diabetic	4.9%	7.0%

***The collar counties are those counties surrounding Cook County: Lake, McHenry, Kane, DuPage, and Will. Source: Behavior Risk Factor Surveillance Survey, Lake County (2009).**

The US Preventive Services Task Force (USPSTF) evaluates the evidence for the efficacy of preventive services and recommends those of proven value. One aspect of the information provided by the BRFSS is to estimate that adoption or utilization of those preventive services that have received the strongest recommendations from the USPSTF. The results from the 2009 BRFSS (See Table 1.4) indicates the estimated use of those services by adults in Lake County and compares that level of utilization to counties in the region of similar economic and demographic characteristics.

Table 1.4 Adult Preventive Service Use, Collar County Comparison (2009)

Adult Preventive Service Use	Lake	McHenry	DuPage	Kane	Will
Ever had a Pap Smear	97.4%	95.0%	93.0%	96.2%	91.0%
Last Pap Smear <1 yr.	83.4%	82.8%	83.2%	83.9%	79.0%
Ever had a Mammogram 40+	95.9%	87.4%	94.5%	94.9%	91.4%
Mammogram < 1yr. 40+	68.3%	67.4%	69.8%	66.3%	68.8%
Ever Had a Clinical Breast Exam	93.6%	91.5%	91.4%	87.9%	97.3%
Clinical Breast Exam < 1 yr.	89.9%	87.5%	92.3%	88.3%	87.1%
Ever Had PSA (Men 40+)	59.4%	57.4%	62.4%	N/A	N/A
Ever Had Digital Rectal Exam (Men Age 40+)	71.2%	74.1%	72.6%	N/A	N/A
Ever Had Colonoscopy (Age 50+)	62.0%	60.0%	60.9%	61.5%	31.2%
Ever Had Fecal Occult Blood Test (Age 50+)	44.2%	37.6%	36.8%	41.9%	42.1%

Source: Behavior Risk Factor Surveillance Survey, Lake County and collar counties (2009).

Vulnerable populations*

Vulnerable populations may face unique health risks and barriers to care that require enhanced services and targeted strategies for outreach and case management. These populations include people who:

- Have no high school diploma (among adults age 25 and older): 12.0%
- Are unemployed (October, 2010): 9.6%
- Are severely work disabled: 1.3%
- Have major depression: 4.7%
- Are recent drug users (within past month): 6.0%

* These Lake County estimates of prevalence were obtained from various sources and were applied to estimated 2009 county population.

Social Determinants of Health and Equity

The social determinants of health are the conditions in which people are born, grow, live, work and age, including the health system. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels, which are themselves influenced by policy choices. The social determinants of health are mostly responsible for health inequities, the unfair and avoidable differences in health status seen within and between countries.*

For Lake County, these social determinants of health and equity relate to demographic categories such as: age, marital status, race/ethnicity, socio-economic status, education, employment, and family history and cohesion. Because these demographic categories and the social factors that surround them can have a significant impact upon disparities in health outcomes, significant consideration is given to them in this report.

* Excerpt taken from the World Health Organization, Commission on Social Determinants of Health (2008)

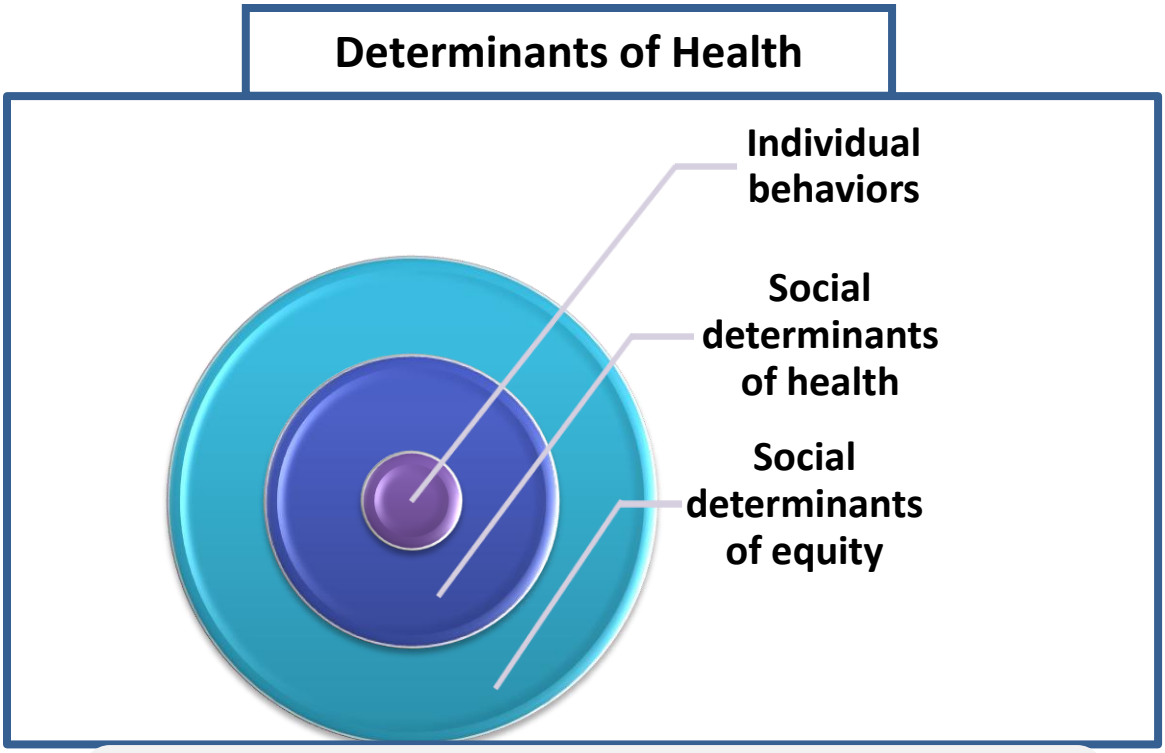


Figure 1.1 The Concept of Social Determinants of Health and Equity
Source: Phyllis Jones, C. (2000); World Health Organization, Commission on Social Determinants of Health (2008).

Determinants of health include behaviors, the contexts in which the behaviors arise (social determinants of health), and the forces which create the range of contexts and differently distribute populations into the contexts (social determinants of equity). All three levels of these determinants need to be addressed in order to improve health outcomes and eliminate health disparities.

Healthy People (HP) 2020, Lake County

Healthy People (HP) 2020 establishes science-based, 10-year national objectives for improving the health of all Americans. For 3 decades, Healthy People has established benchmarks and monitored progress over time in order to:

- Encourage collaborations across sectors.
- Guide individuals toward making informed health decisions.
- Measure the impact of prevention activities.

Healthy People 2020 is a 10-year agenda for improving the Nation's health. Healthy People 2020 is the result of a multiyear process that reflects input from a diverse group of individuals and organizations. Many of the Healthy People 2020 Goals are tracked using national data. Listed below is a selection of goals where timely data for Lake County residents is available. The Lake County data are presented in comparison to the most recent national data and to the 2020 Goal.

Table 1.5 Healthy People 2020 Goals, Compared with Current National and Lake County Statistics			
Health Indicator	**National Current**	**Goal**	**Lake County***
Reduce overall cancer death rate	178.4/100,000	160.6/100,000	144.5/100,000
Heart Disease: Reduce coronary heart disease deaths	126/100,000	100.8/100,000	125.2/100,000
Cerebrovascular Disease: Reduce stroke deaths	42.2/100,000	33.8/100,000	31.1/100,000
Chronic Pulmonary Disease: Reduce COPD hospitalizations	53/10,000	50.1/10,000	29.7/10,000
Reduce the lung cancer death rate	50.6/100,000	45.5/100,000	42.98/100,000
Reduce the female breast cancer death rate	22.9/100,000 females	20.6/100,000 females	13.2/100,000
Reduce the death rate from cancer of the uterine cervix	2.4/100,000 females	2.2/100,000 females	1.8/100,000
Reduce the colorectal cancer death rate	17/100,000	14.5/100,000	18.4/100,000
Reduce the oropharyngeal cancer death rate	2.5/100,000	2.3/100,000	3.6/100,000
Reduce the prostate cancer death rate	23.5/100,000 males	21.2/100,000 males	8.2/100,000
Reduce the melanoma cancer death rate	2.7/100,000	2.4/100,000	4.3/100,000
Low birth weight (LBW)	8.2%	7.8%	8.7%
Very low birth weight (VLBW)	1.5%	1.4%	2.2%
Total preterm births	12.7%	11.4%	9.7%
Late preterm or live births at 34 to 36 weeks of gestation	9.0%	8.1%	7.0%
Live births at 32 to 33 weeks of gestation	1.6%	1.4%	1.2%
Very preterm or live births at less than 32 weeks of gestation	2.0%	1.8%	1.5%
Prenatal care beginning in first trimester	70.8%	77.9%	88.3%
Early and adequate prenatal care	70.5%	77.6%	74.1%
Reduce the suicide rate	11.3/100,000	10.2/100,000	7.5/100,000

***Rates are age-adjusted per 100,000 using the year 2000 standard million population.**
Sources: Healthy People 2020; IDPH Vital Statistics (2004-2008).

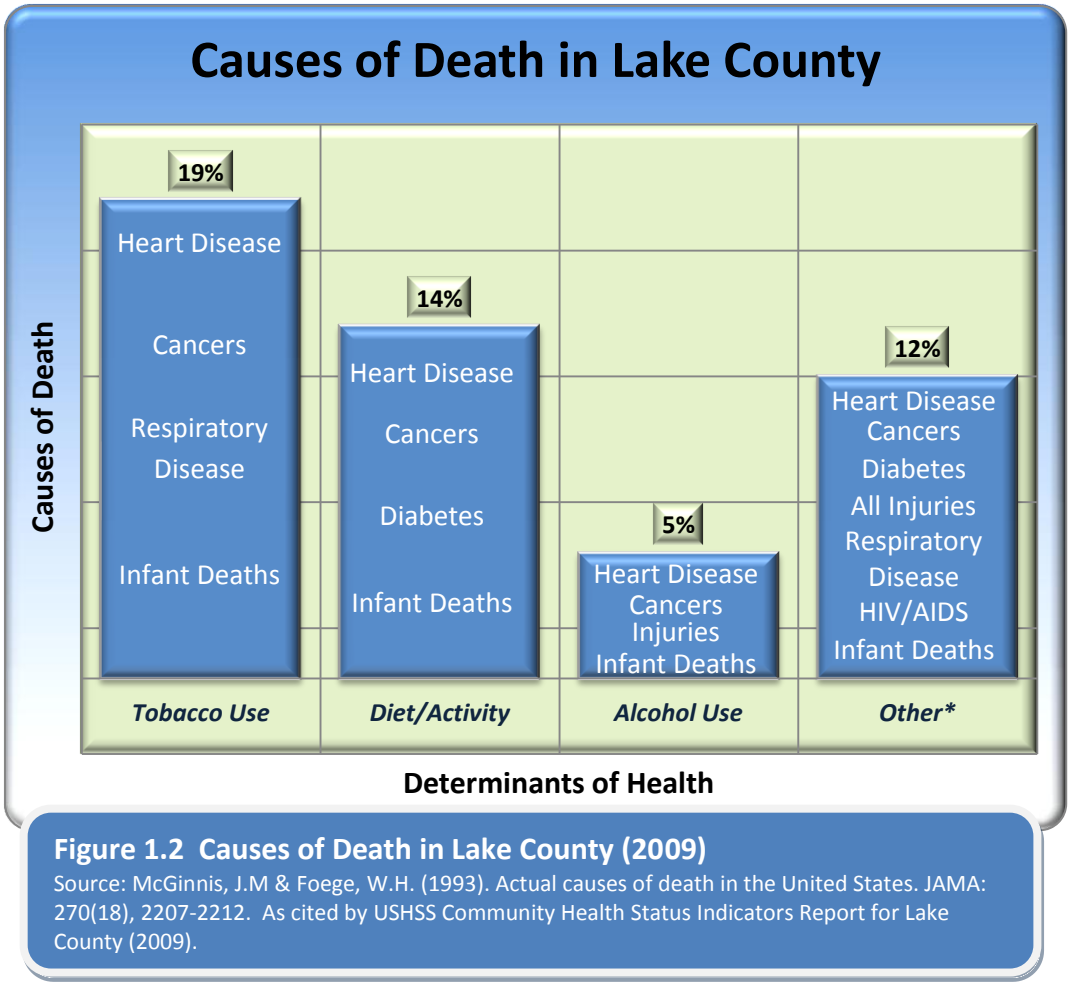


Figure 1.2 Causes of Death in Lake County (2009)
Source: McGinnis, J.M & Foege, W.H. (1993). Actual causes of death in the United States. JAMA: 270(18), 2207-2212. As cited by USHSS Community Health Status Indicators Report for Lake County (2009).

While we may measure deaths due to heart disease, cancers, or infant deaths, we should always keep in mind that factors such as tobacco, diet, activity, and alcohol use substantially contribute to these deaths. For example, as shown in Figure 1.2 above, tobacco use accounts for 19 percent of all U.S. deaths.

Section II: An Evaluation of Progress toward the Community Health Improvement Goals from the 2006 Illinois Project for Local Assessment of Needs (IPLAN)

The Illinois Project for Local Assessment of Needs (IPLAN) is an assessment and planning tool that provided the Lake County Health Department and Community Health Center a means of evaluating its organizational capacity through an internal self-assessment, and strengthening its leadership role in the community. The process guides the Lake County Health Department and Community Health Center in mobilizing community resources in pursuit of locally relevant public health objectives. It laid the groundwork for local adoption of the Healthy People 2010 national health objectives.

A community health needs assessment and plan was initiated by the Lake County Health Department and Community Health Center (LCHD/CHC) to determine locally relevant health priorities to better serve the residents of Lake County. Public health problems demand collaborative and coordinated efforts to minimize service duplication, excess cost and assure successful intervention. This process provides both the community knowledge and support necessary for the identification and management of community health problems.

Due to the inherent lag time in collecting, compiling, and distributing population health data, the baseline measures for mortality referred to in the 2006 IPLAN are based on 2003 data. The most recent mortality data is from 2007. The baseline data for the non-mortality measures are from the Behavioral Risk Factor Surveillance Survey (the BRFSS) conducted in 2003. The current measures are from the 2009 BRFSS.

Cancer Reduction and Prevention

For several years the Lake County Health Department/Community Health Center has engaged in an initiative to improve screening rates. The Primary Care Service area addresses reduction in cancer mortality by insuring that patients receive recommended age and sex appropriate screening based on the United States Preventive Services Task Force (USPSTF) recommendations and that disparities in care are addressed through targeted outreach and follow up to minority patients. Print and video educational materials in English and Spanish have been developed to explain how to live a healthy life style and the role of screening and preventive care in those choices. English and Spanish instructions for collecting fecal occult blood test specimens were simplified. Lake County TV has been utilized to feature primary care physicians discussing the importance of cancer screening.

The Lake County Health Department is an active partner with the Regional American Cancer Society in implementing policies and strategies to reduce the burden of cancer. Reducing use of tobacco products and reducing exposure to second hand smoke have been two areas of collaboration. The Health Department is also a member of the Society's Health Initiatives Council to promote increased utilization of recommended screening procedures, and outreach to minority county residents.

Cancer is the primary cause of mortality for Lake County residents.

Two of the IPLAN population health improvement goals address major sources of cancer mortality: Breast Cancer and Colon Cancer.

1. By 6/1/2011, reduce Lake County's female breast cancer mortality rate to 18 per 100,000 or less (Lake County baseline= 22/100,000). HP 2010 = 22.3/100,000

    a. By 12/1/2010, increase to 88% the number of Lake County women 20-40 years of age who have received a clinical breast exam in the previous 3 years (Lake County baseline = 80.2%)
    b. By 12/1/2010, increase to 90% the number of Lake County women 40+ years of age who have received a mammogram in the previous two years (Lake County baseline = 88.4%) HP 2010 Target = 70%
    c. By 12/1/2010, increase to 38% the number of Lake County African American/Latino women 40+ years of age who have received a mammogram in the previous two years (Lake County baseline = 18.9%) HP 2010 Target = 70%

Table 2.1 Breast Cancer in Lake County (2000-2007)

	Baseline	IPLAN Goal	Most Recent
Breast Cancer Mortality	22/100,000	18/100,000	22.3/100,000
Received a clinical breast exam	80.2%	88%	82.0%
Received a mammogram	88.4%	90%	81.6%
African-American/Latino received a mammogram	18.9%	38%	32.0%

Source: Mortality IDPH Vital Statistics: Lake County. Baseline (2000-2003); Most Recent (2003-2007).

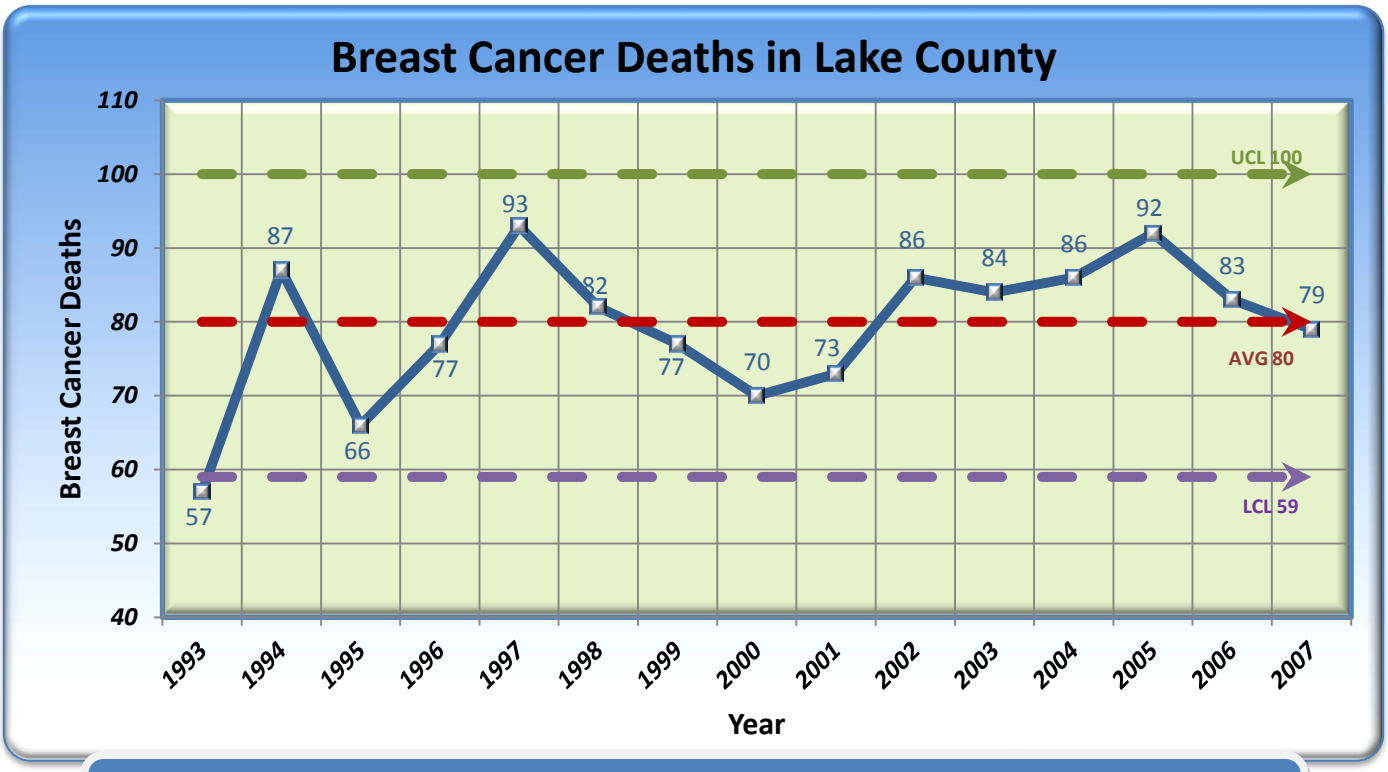


Figure 2.1 Breast Cancer Deaths in Lake County (1993-2007)
Source: Mortality IDPH Vital Statistics: Lake County, (1993-2007).

2. By 6/1/2011, reduce Lake County's colon cancer mortality rate to 18 per 100,000 or less (Lake County baseline = 20.1/100,000) HP 2010 Target = 13.9/100,000

    a. By 12/1/2007, develop and implement a colon cancer education campaign targeting LCHD/CHC patients and emphasizing the need to follow one of the American Cancer Society's early colon cancer detection schedules and the benefits of early intervention. In addition, increase patient education contacts to 50 % of the LCHD/CHC patient base.
    b. By 12/1/2010, increase to 75% the proportion of Lake County residents 50 years of age and older who have had a Fecal Occult Blood Test in the preceding two years (Lake County baseline = 69.4%). HP 2010 Target = 50%.
    c. By 12/1/2010, increase to 75% the proportion of Lake County residents 50 years of age and older who have had a flexible sigmoidoscopic exam in the preceding two years (Lake County baseline = 55%). HP 2010 Target = 50

Table 2.2 Colon Cancer in Lake County (2000-2007)

	Baseline	IPLAN Goal	Most Recent
Colon Cancer Mortality[1]	20.1/100,000	18/100,000	11.8/100,000
Fecal Occult blood Test	69.4%	75%	44.2%
Flexible Sigmoidoscopy exam	55.0%	75%	62.0%

[1] **Source: Mortality IDPH Vital Statistics: Lake County. Baseline (2000-2003); Most Recent (2003-2007).**

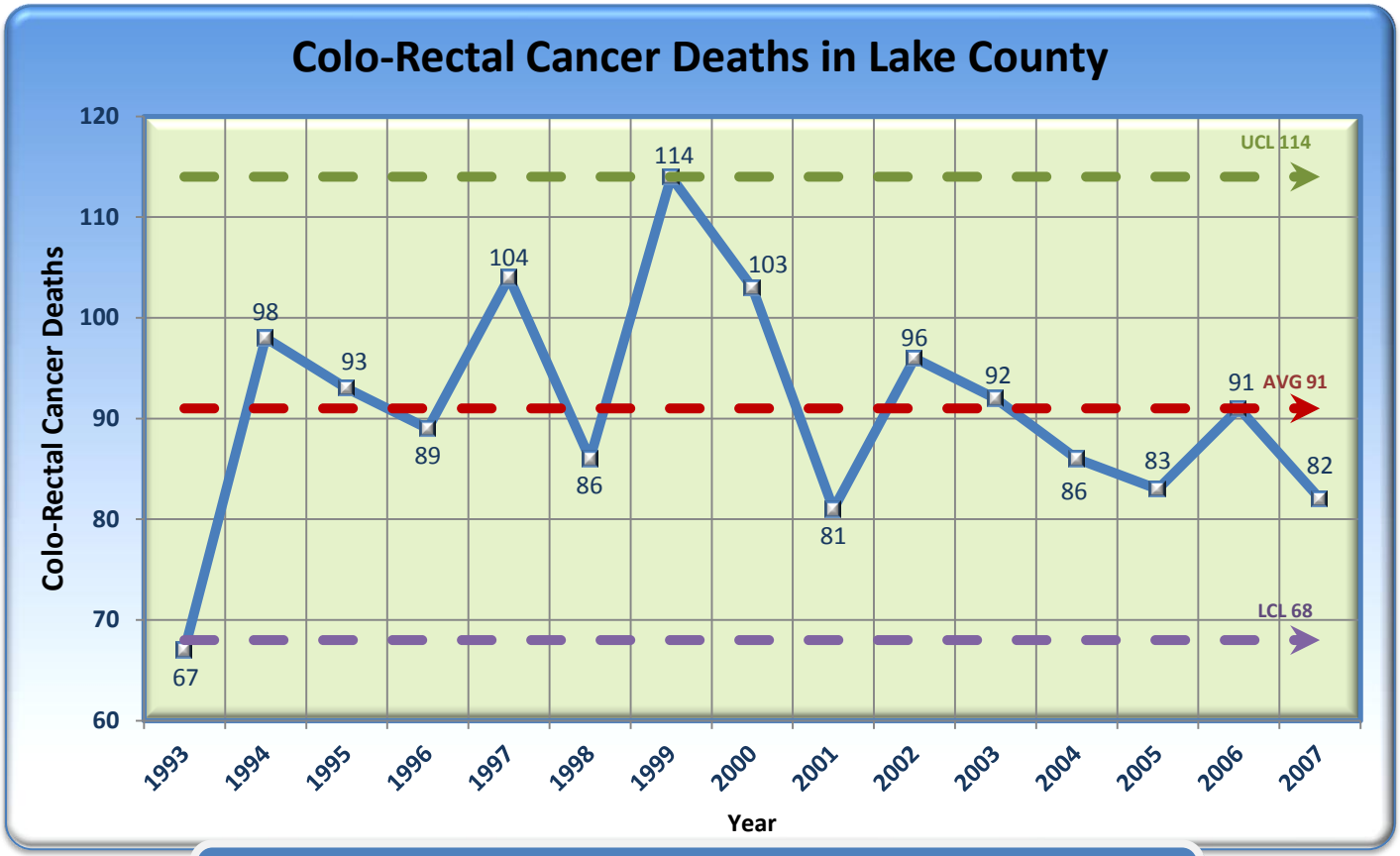


Figure 2.2 Colo-Rectal Cancer Deaths in Lake County (1993-2007)
Source: Mortality IDPH Vital Statistics: Lake County (1993-2007).

Our best available data does not indicate a decline in mortality rates from breast cancer. There has been an increase in preventive screening by African American and Latino women, thus reducing the disparity in the preventive care used by those segments of our population. This may have positive implications for breast cancer mortality in the future. Mortality rates from colon cancer decreased 41%, which exceeded the IPLAN health improvement goal.

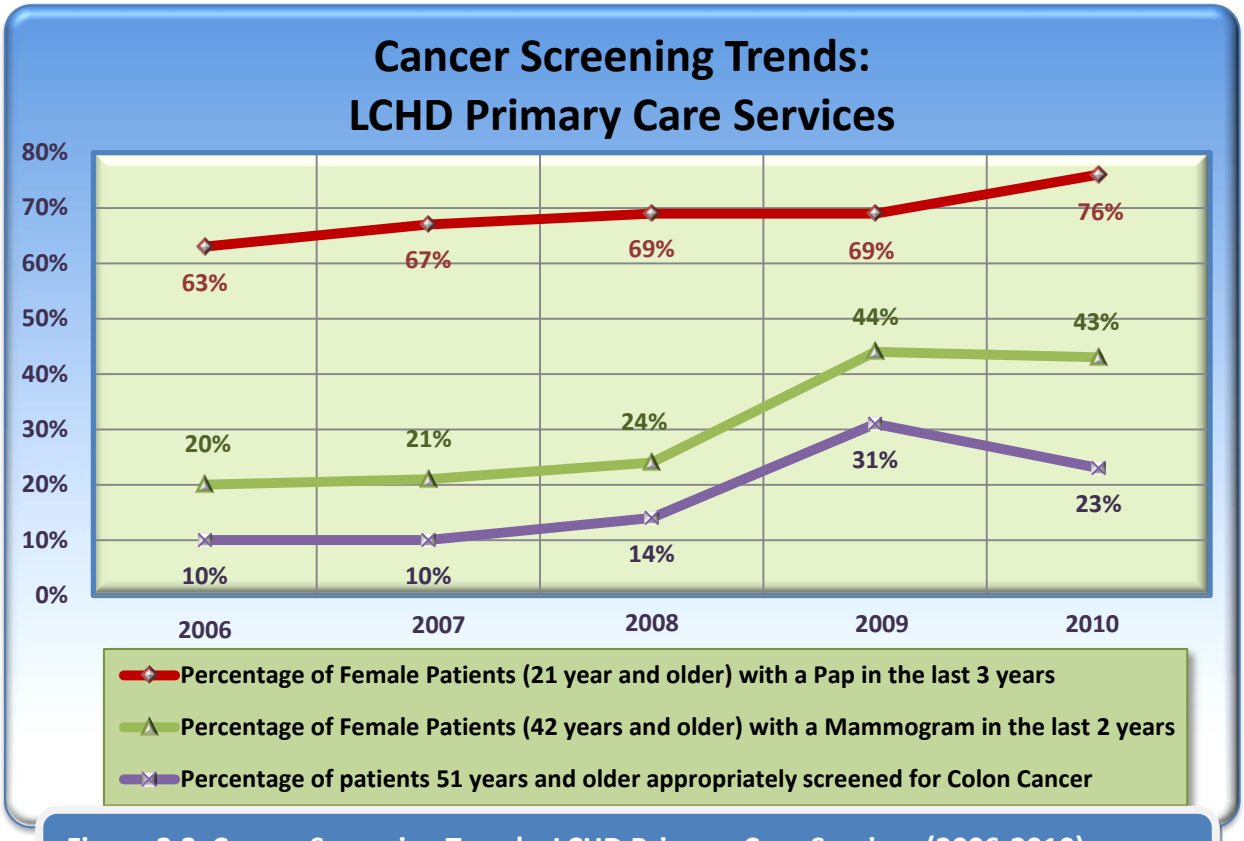


Figure 2.3 Cancer Screening Trends: LCHD Primary Care Services (2006-2010)
Source: Lake County Health Department (2006-2010).

Obesity Reduction and Prevention

From September 2007 to April 2008 an IPLAN Implementation Committee met to brainstorm, evaluate, and recommend actions that would help achieve the following IPLAN community health improvement goals focused on obesity:

1. By 6/1/2011, reduce obesity in Lake County's adult population to 15% or less (Lake County baseline = 18.7%) HP 2010 Target = 15%

2. By 6/1/2011, reduce obesity among Lake County's 6th-12th grade students to 15% or less (Lake County baseline = 27%). HP 2010 Target = 5%

Table 2.3 Obesity in Adults and Overweight/Obesity in Youth

	Baseline	IPLAN Goal	Most Recent
Percent of obese adults	18.7%	15%	19.8%
Percent of overweight / obese 6th-12th graders	27.0%	15%	25.0%

Sources: Behavioral Risk Factor Surveillance System: Lake County (2003, 2009), Illinois Youth Survey (2006, 2010).

Population Health Services (LCHD) provides individualized weight loss counseling to patients referred from community physicians and Behavioral Health. Counseling is also provided to Health Reach Clinic patients during times scheduled weekly. Community nutrition services are also provided through media outreach such as Lake County TV programs and a monthly column in a daily newspaper. The Population Health nutritionist is available for presentations to a variety of community groups, providing consultation to school and park districts, and assists interested restaurants in menu re-design.

The Women, Infants, and Children (WIC) Program provides supplemental nutrition support to qualified pregnant women, newborns, and children up to five years of age. In 2009 the WIC program had over 18,000 clients and in excess of 67,000 visits a year so it is a substantial population of income qualified young adult females and young children. In addition to healthy birth outcomes and adequate nutrition to pregnant mothers and young children, the WIC program focuses on healthy nutritional starts for infants and young children by encouraging early formation of healthy eating habits that can avoid excessive weight later in childhood.

From 2003 to 2005, the program experienced an increasing proportion of children with a high Body Mass Index (BMI) who were, or were at risk of becoming, obese (See Fig. 2.4). In 2005 WIC adopted the American Academy of Pediatrics (AAP) recommendations for preventing or reducing obesity, and emphasized those recommendations in its nutritional encounters with clients.
From 2005 to 2007, there was a decrease in the proportion of clients who were, or were at risk of becoming obese. But the declining trend reversed itself in 2008 and later.

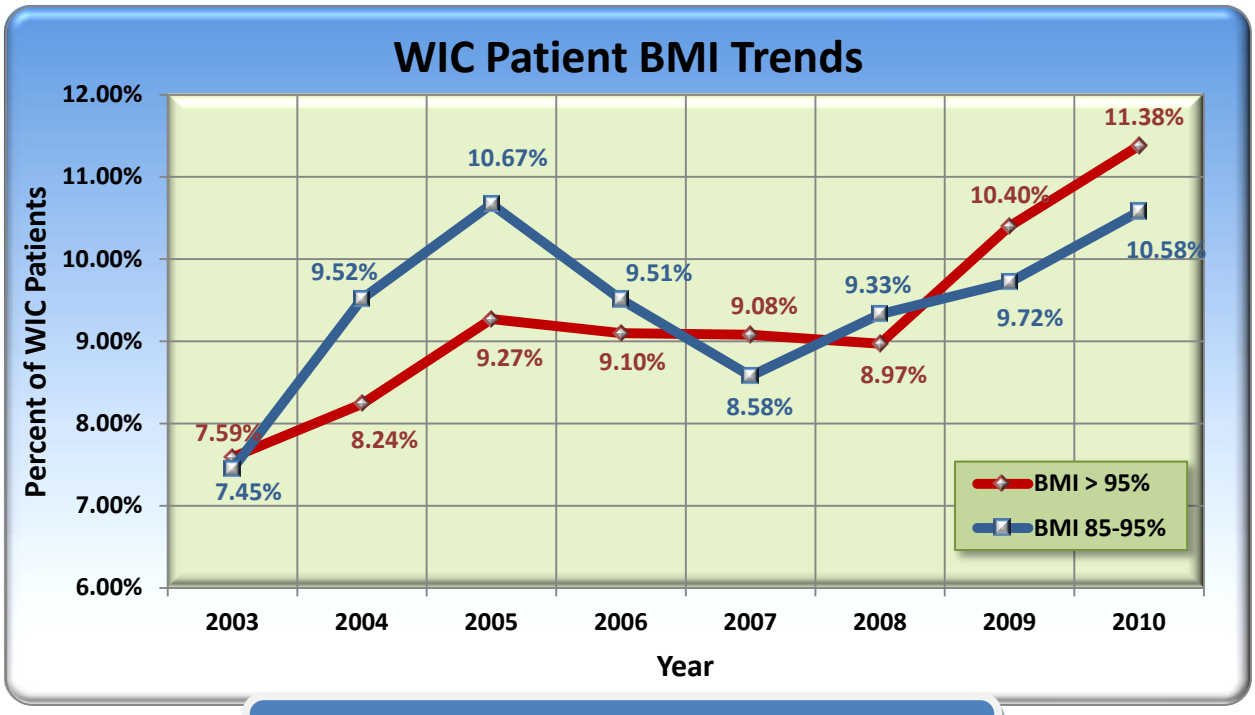


Figure 2.4 WIC Patient BMI Trends (2003-2010)
Source: Lake County Health Department (2003-2010).

Body Mass Index (BMI) is a number calculated from a child's weight and height. BMI is a reliable indicator of body fatness for most children and teens. BMI does not measure body fat directly, but research has shown that BMI correlates to direct measures of body fat. After BMI is calculated for children, the BMI number is plotted on the CDC BMI-for-age growth charts (for either girls or boys) to obtain a percentile ranking. Percentiles are the most commonly used indicator to assess the size and growth patterns of individual children in the United States. The percentile indicates the relative position of the child's BMI number among children of the same sex and age. By 2005 nearly 11% of children age 2 to 5 were in the 85-95 percentile and 9.27% exceeded the 95 percentile. WIC program data from 2006 and 2007 suggested that programmatic focus on the AAP Guidelines may have beneficial results for children, but a continuous effort was required to sustain the benefits.

In 2009 LCHD/CHC chartered a quality improvement (QI) team to evaluate the WIC program's processes for incorporating the AAP recommendations regarding client counseling. At the same time the US Department of Agriculture revised its food packages to provide incentives for women who exclusively breastfeed. The goals of the QI team were to increase the proportion of mothers who initiate breastfeeding and are able to sustain breastfeeding for at least six months. The content of WIC counseling sessions was also revised with renewed emphasis and encouragement for the adoption of the AAP recommendations. Baseline data was collected for six months prior to the introduction of the new food packages followed by an eight month implementation period for the new food packages, revisions to the counseling information, and increased support for establishment and maintenance of breastfeeding goals.

Pre/post measures of breastfeeding mothers indicated that there was an increasing trend in initiation of breastfeeding (reaching 75%), and an increasing percent of mothers who were able to sustain breastfeeding for at least six months (33-35%) after implementation to the QI Team recommendations (see Fig. 2.5).

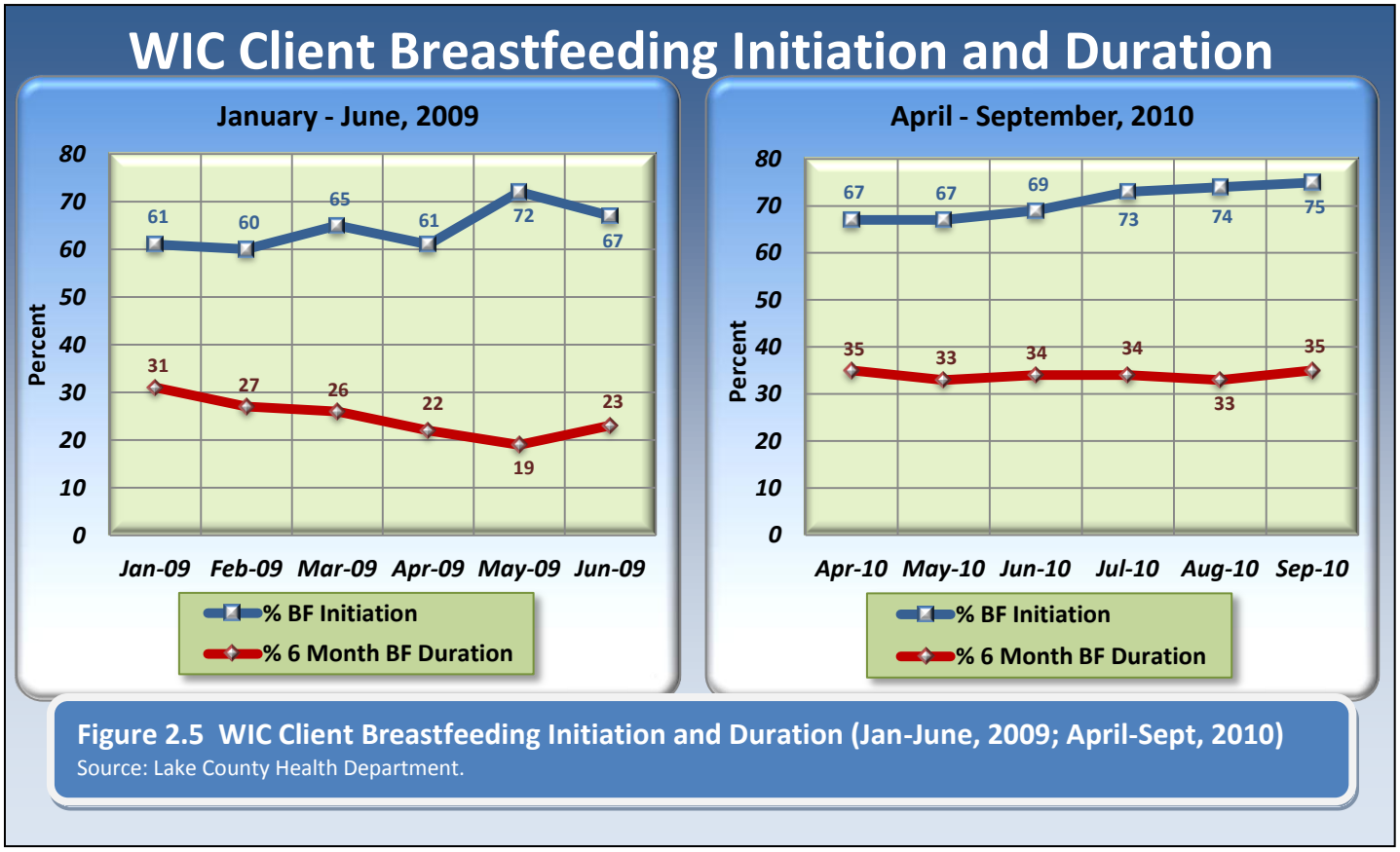


Figure 2.5 WIC Client Breastfeeding Initiation and Duration (Jan-June, 2009; April-Sept, 2010)
Source: Lake County Health Department.

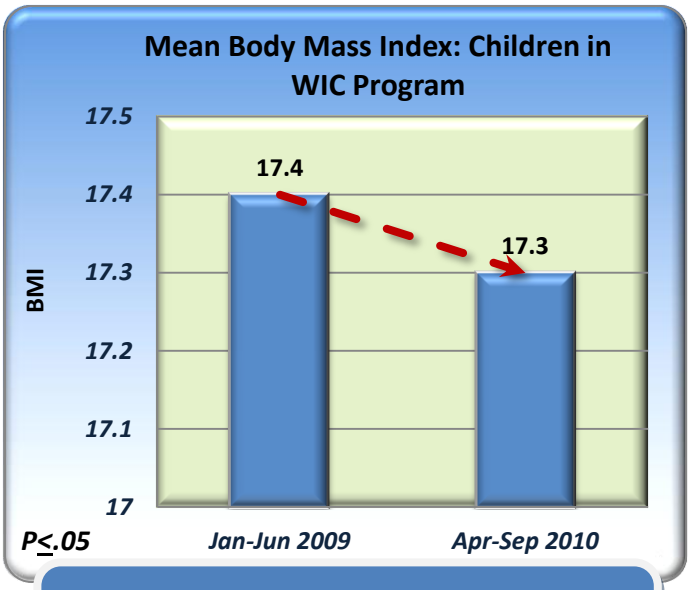


Figure 2.6 Mean Body Mass Index: Children in WIC Program (2009-2010)
Source: Lake County Health Department (2009-2010).

BMI data from encounters with WIC children ages 2-5 during the first six months of 2009 (N=4621) was compared to similar data from April-Sept. 2010 (N=4808). Mean BMI decreased from 17.4 to 17.3 which was statistically significant ($p \leq .05$) (see Fig. 2.6).

The percent of Lake County adults and children who are obese increased less than 1% compared to the baseline measure so there is no evidence of progress towards achieving the IPLAN goal of reducing obesity from 18% to 15%.

Unintentional Injuries

1. By 6/1/2011, reduce the unintentional injury mortality rate to 20 per 100,000 or less (Lake County baseline = 27.3/100,000) HP 2010 Target = 17.5/100,000
2. By 12/1/2010, reduce the Lake County motor vehicle accident mortality rate to no more than 9 per 100,000 (Lake County baseline = 10.3/100,000) HP 2010 Target = 9.2/100,000
3. By 12/1/2010, reduce the fall-related mortality rate among persons 65+ years of age in Lake County to no more than 3 per 100,000 (Lake County baseline = 3.97 /100,000) HP 2010 Target = 3/100,000

Table 2.4 Unintentional Injuries in Lake County (2000-2007)

Unintentional Injury Goal	Baseline	IPLAN Goal	Most Recent
Reduce unintentional injury mortality	27.3/100,000	20.0/100,000	25.8/100,000
Reduce motor vehicle accident mortality	27.3/100,000	10.3/100,000	6.5/100,000
Reduce mortality due to a fall among 65+	3.97/100,000	3.0/100,000	3.4/100,000

Source: Mortality IDPH Vital Statistics: Lake County. Baseline (2000-2003); Most Recent (2003-2007).

Lake County resident mortality rate due to motor vehicle accidents (MVA's) decline 76% from 2003 to 2007, and the Health Department will continue to track this measure as more current data is available. Several factors are cited for this decrease:

- Improvements in vehicle safety
- Increased use of seatbelts and enforcement of seatbelt laws
- Increase enforcement of impaired driver laws
- Graduated licensing requirements for young new drivers

Motor Vehicle Accidents, Injuries, and Fatalities

Population Health has a program to provide infant car seats to families identified by Maternal and Child Health programs. Population Health has three certified infant car seat installers. The program is funded through grants so installations per year vary by the funds available. In addition to installing car seats, Family Life Education does car seat checks at local safety fairs, and provides education programs to mothers enrolled in PAGES, a teen pregnancy prevention program.

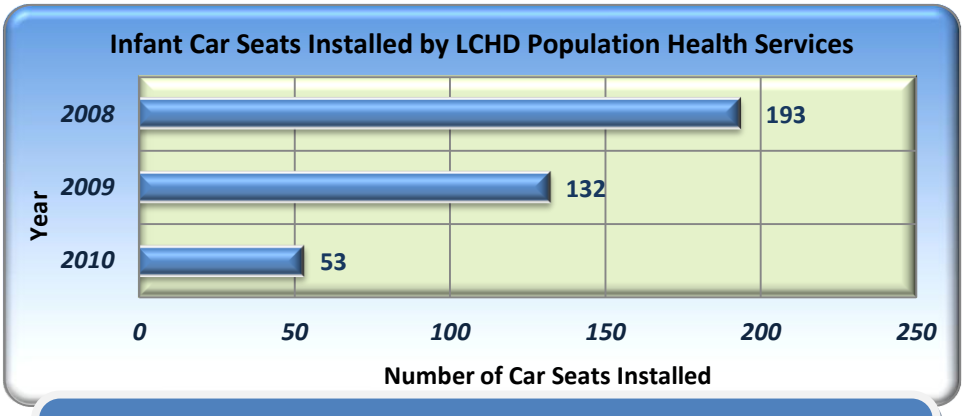


Figure 2.7 Infant Car Seats Installed by LCHD Population Health Services (2008-2010)
Source: Lake County Health Department Program Data (2008-2010).

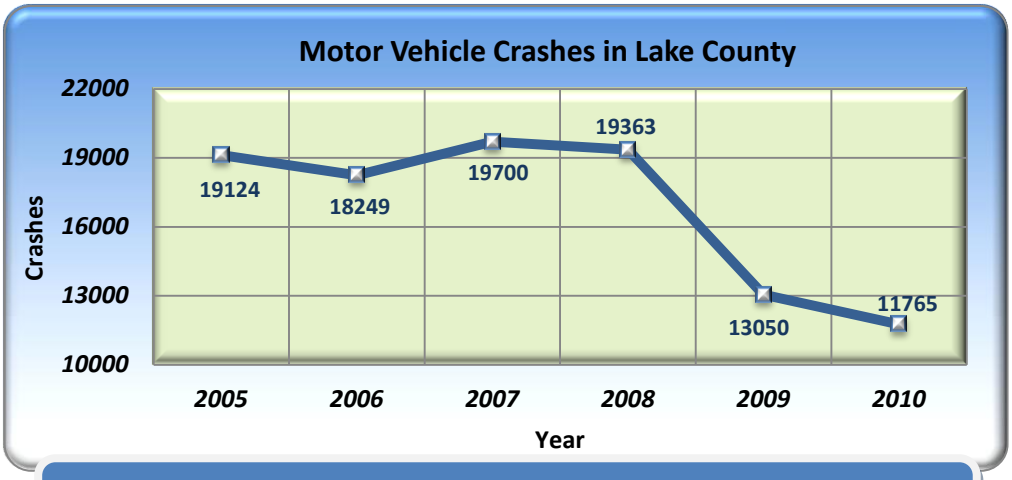


Figure 2.8 Motor Vehicle Crashes in Lake County (2005-2010)
Source: Illinois Department of Transportation (2005-2010).

Between 2005 and 2008, the number of crashes in Lake County averaged about 19,000 per year. The first substantial decline in crashes occurred in 2009 when they declined 32% compared to 2008.

Although there is no evidence of a long term decline in the number of crashes each year in Lake County (see Fig. 2.8), there has been a steady decline in injuries since 2005, approximately a 30% decrease (see Fig. 2.9).

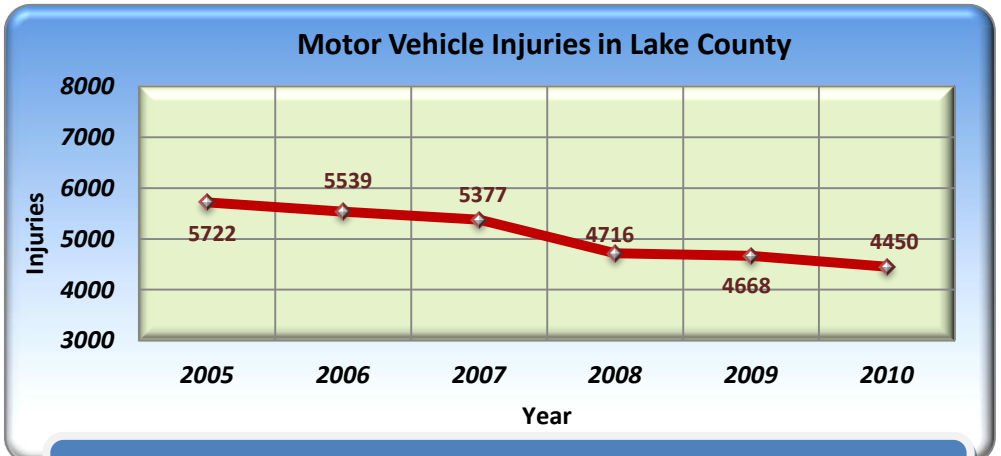


Figure 2.9 Motor Vehicle Injuries in Lake County (2005-2010)
Source: Illinois Department of Transportation (2005-2010).

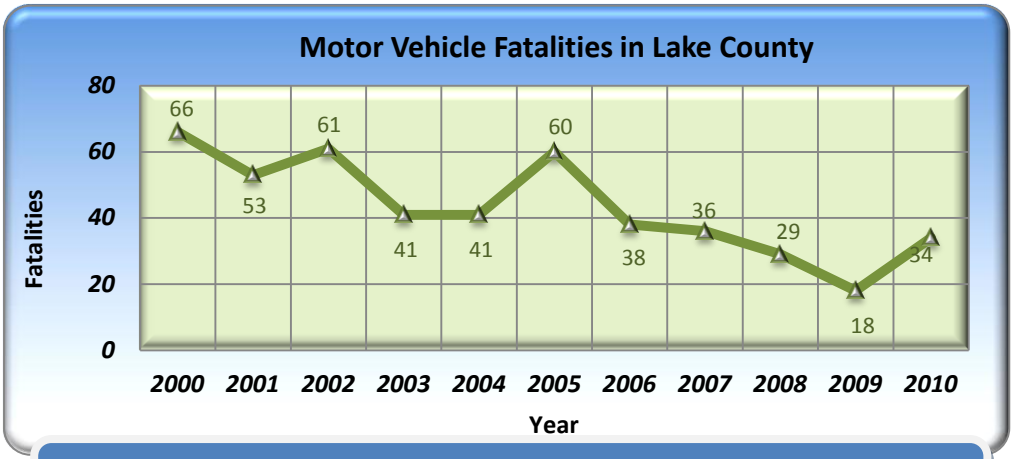


Figure 2.10 Motor Vehicle Fatalities in Lake County (2000-2010)
Source: Illinois Department of Transportation (2000-2010).

There were spikes in the number of fatalities resulting from crashes in 2002 and 2005, but the number has declined in other years from 66 in 2000 to 18 in 2009, a 73% decrease (see Fig. 2.10).

Elderly Falls

As people age, reduced activity and decreased lower body strength, increasing use of medications, and declining vision may all combine to increase a person's risk of injury due to a fall. For people age 75-84 an accidental fall is the second leading cause of accident or injury hospitalization. For people age 85 and older falls are the leading cause of accident or injury hospitalization.

Table 2.5 Growth in Lake County Population, Ages 65+

Age Range	2000	2010	Percent Change
65-74	30,625	40,436	+32.0%
75-84	18,323	22,762	+24.2%
85+	6,041	9,895	+63.7%

Source: US Census Bureau (2000 & 2010).

A comparison between the 2000 Census data and the population in 2010 indicates substantial growth in the population age 65 and older, particularly among people age 85 and older (see Table 2.6).

Hospitalization due to a fall can be a life altering event. Although over 80% of elderly people who fall and are hospitalized, fall in their home, 54-56% are discharged to a skilled nursing facility or rehab center rather than returning to their home. The CDC estimates that 20% of the people who sustain hip fractures during falls will live less than 1 year. The risk of falling among community dwelling older adults can be reduced and falls can be prevented. Falling is not an inevitable consequence of aging.

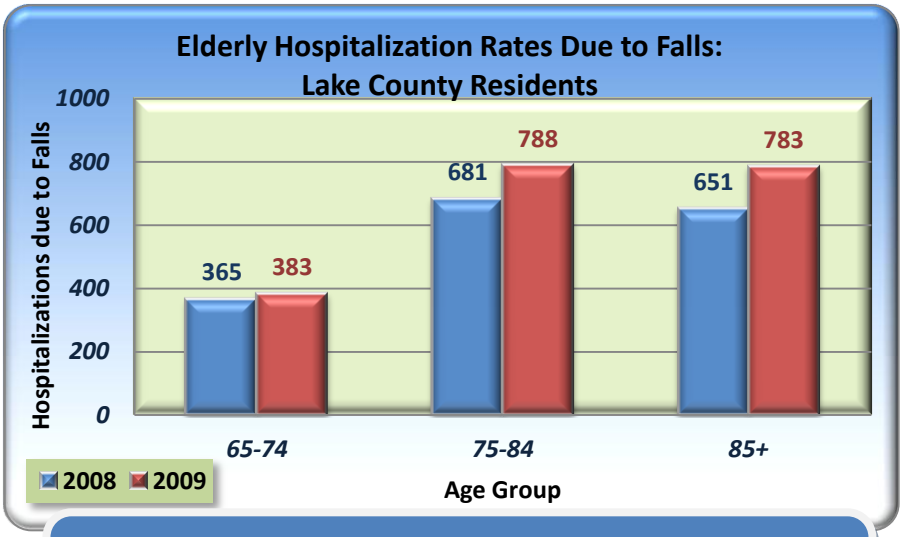


Figure 2.11 Elderly Hospitalization Rates Due to Falls: Lake County Residents (2008-2009)
Source: Illinois Survey of Hospital Discharges IDPH (2008-2009).

Since 2008, LCHD/CHC has chaired the Lake County Fall Prevention Task Force with representatives from all five hospitals, area fire departments/districts, Rosalind Franklin University of Medicine and Science, senior centers, nursing homes, assisted living facilities, and other providers of services to senior citizens. The Task Force has identified resources to assist people at risk of falling, raised awareness of the serious implications of falling,

and encouraged community sponsorship of evidence-based falls prevention programs that can help people reduce their risk of falling.

The mortality from seniors who fall declined about 0.5% from 2003-2007, but the increase in the size of the older population most at risk of falling and injury due to a fall, continues to make fall prevention an urgent public health issue if seniors are going to maintain their quality of life and reduce injury and disability from falling.

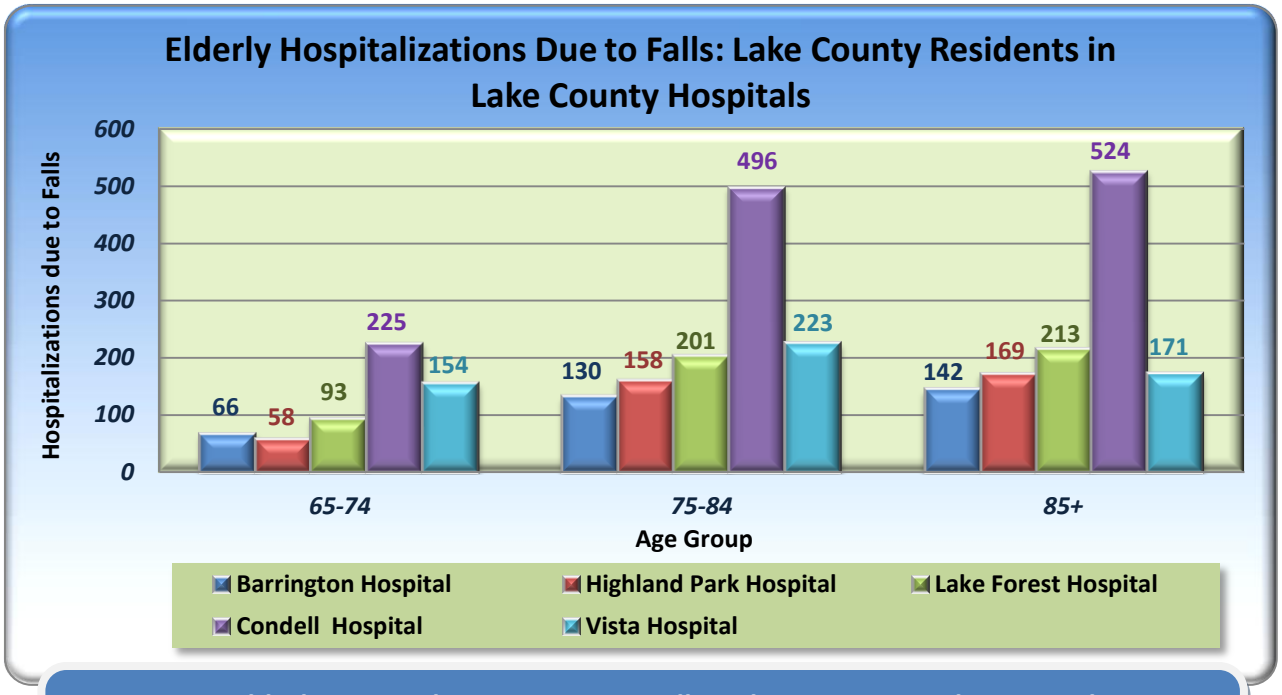


Figure 2.12 Elderly Hospitalizations Due to Falls: Lake County Residents in Lake County Hospitals (2008-2009)

Source: Illinois Survey of Hospital Discharges IDPH (2008-2009).

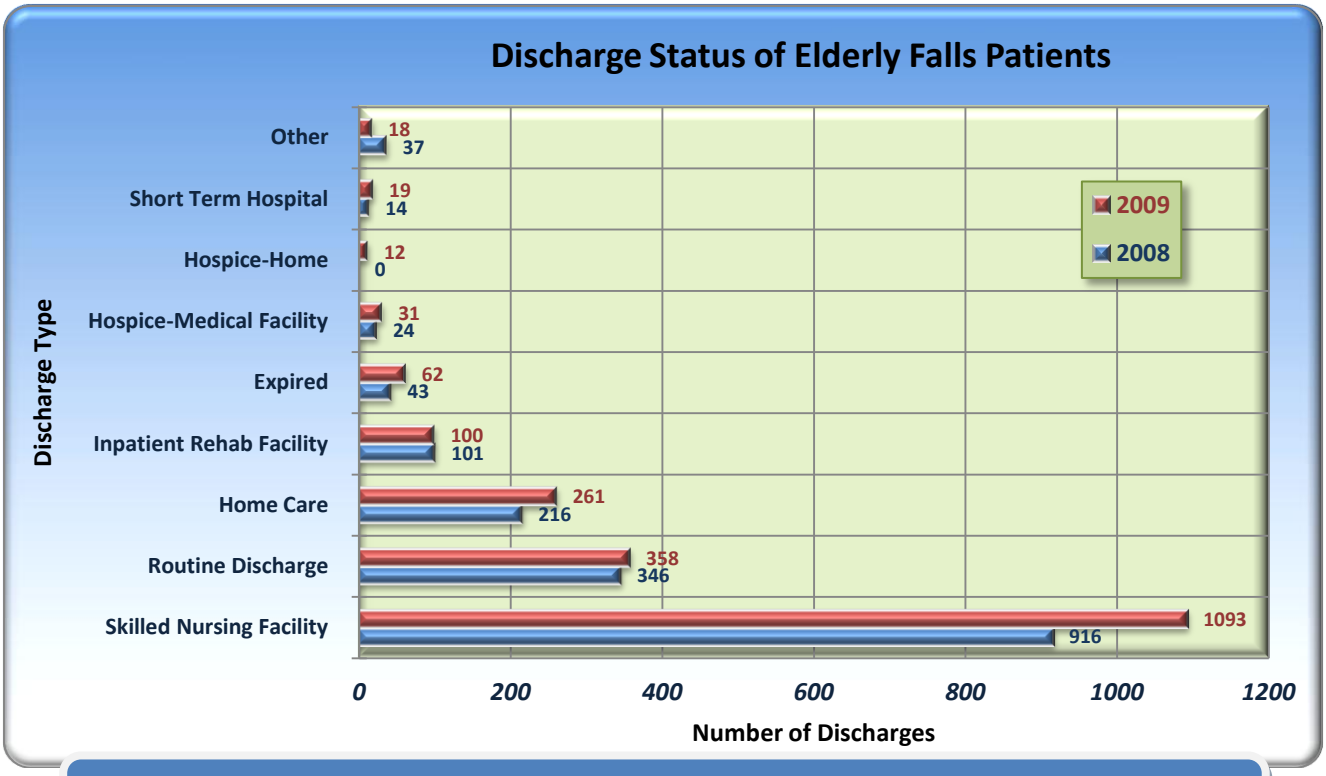


Figure 2.13 Discharge Status of Elderly Falls Patients (2008-2009)
Source: Illinois Survey of Hospital Discharges IDPH (2008-2009).

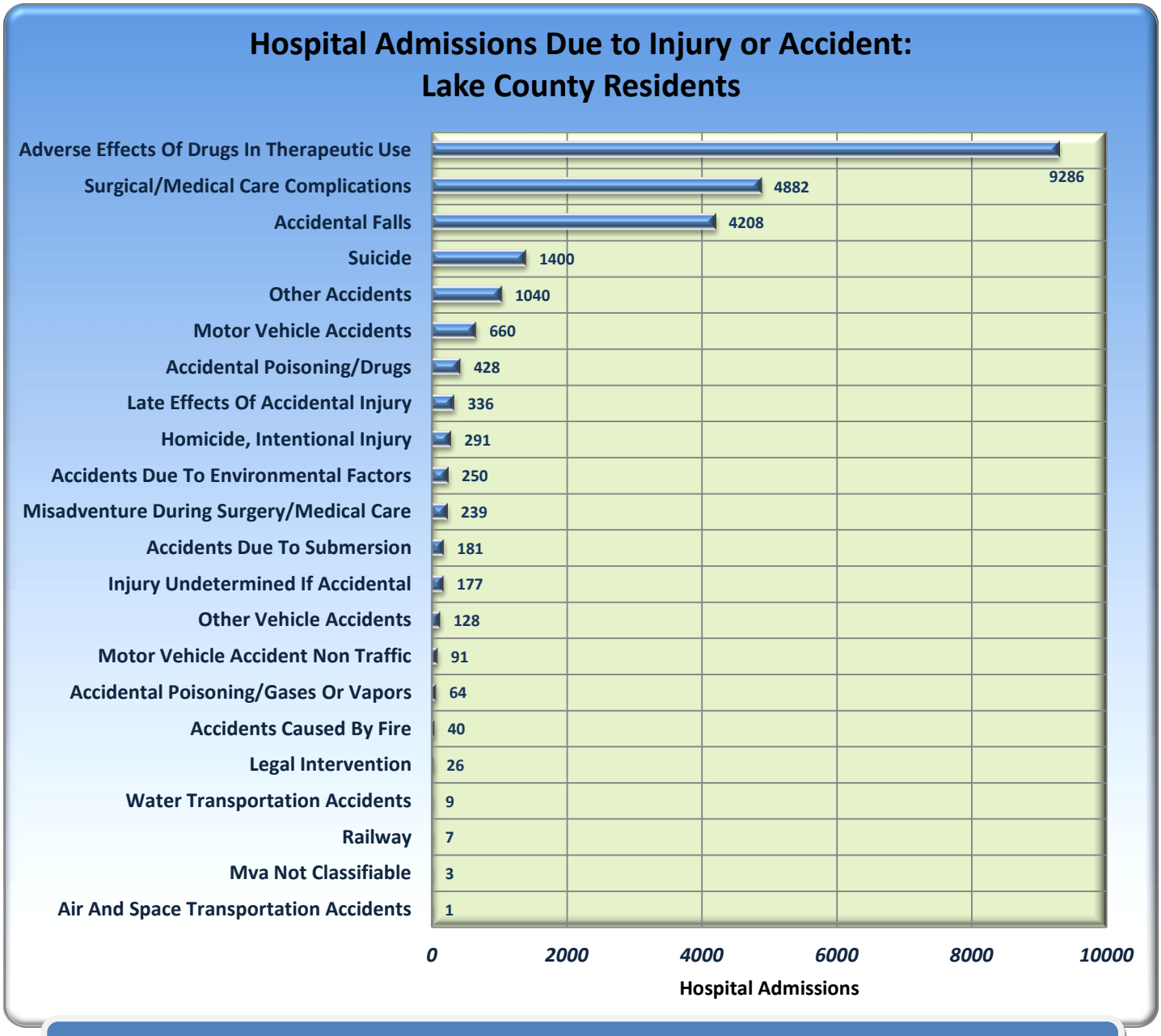
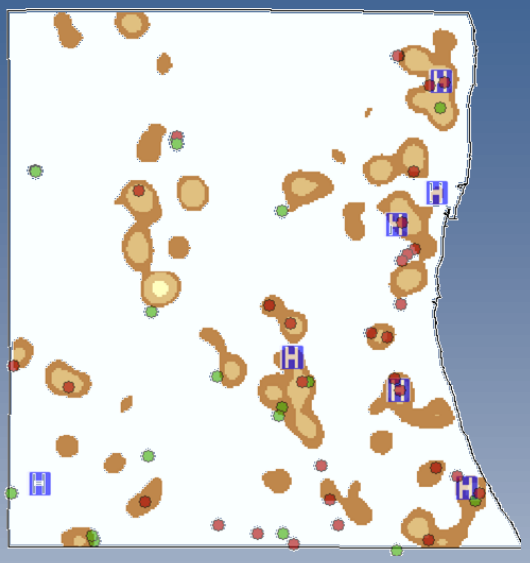


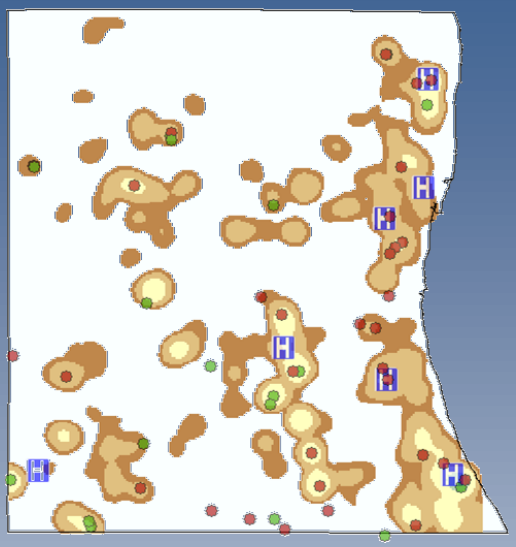
Figure 2.14 Hospital Admissions Due to Injury or Accident: Lake County Residents (2008-2009)
Source: Illinois Survey of Hospital Discharges IDPH (2008-2009).

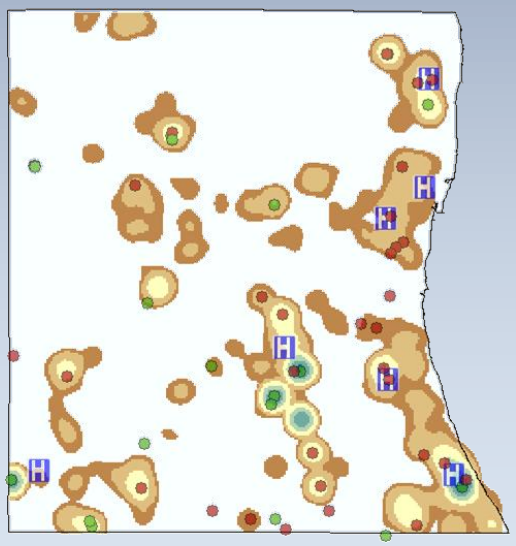
Falls in Lake County by Age Group

Map 2.1 Falls in Lake County: Ages 65-74

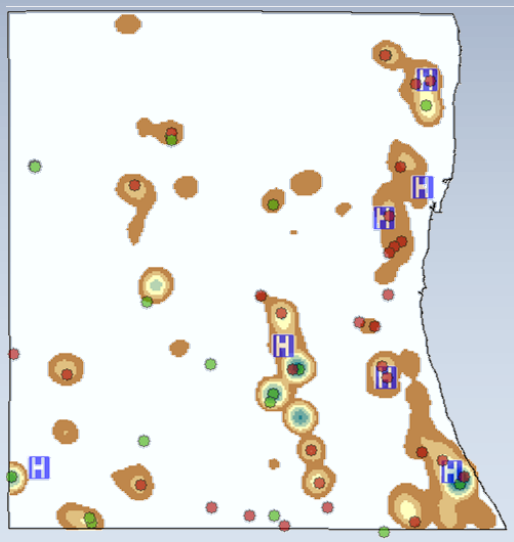


Map 2.2 Falls in Lake County: Ages 75-84





Map 2.3 Falls in Lake County: Ages 85+



Map 2.4 Falls in Lake County: Ages 65+

Source: Trauma Registry (2009).

Section III: Births and Birth Outcomes / Maternal, Fetal, and Infant Health

Birth Outcome Measures

Providing early prenatal care, having babies come to term at an adequate weight, minimizing births to women younger than 18 or older than 40, and minimizing births to single mothers all promote healthy birth outcomes. Adequate nutrition and eliminating the use of alcohol, tobacco, and drugs during pregnancy also have significant impact on insuring healthy births.

Studies of birth outcomes indicate there are significant differences between racial or ethnic groups that persist even when socio-economic differences are taken into account. A study published by James C. Cramer in *Demography* in 1987 examined the birth outcomes of ethnic/racial groups in southern California. The birth outcomes of Hispanics were closer to whites than to African-Americans even when socio-economic variables were similar.

Table 3.1 Birth Outcome Measures: Lake County, entire county (2003-2007)

Birth Outcome Measures (%)	Lake County	Healthy People 2020 Target
Low Birth Weight (<2500 grams)*	11.9%	8.7%
Premature Births (<37 weeks)*	9.4%	9.7%
Births to Women under 18	7.3%	3.6%
Births to Women 40-45	3.5%	N/A
Births to Unmarried Women	25.8%	N/A
No Care in the First Trimester	14.3%	11.7%

Source: IDPH Vital Statistics (2003-2007).
*** = Low birth weights and premature births cited above do not take into consideration the impact of fertility treatments resulting in multiple births.**

There is growing evidence that the results of stress and racism are factors in African-American birth outcomes (Dr. Camara Phyllis Jones, 2009).

A later study by Jennie C. Leslie MD *et al* published in the *American Journal of Obstetrics and Gynecology* in 2003, found similar results in North Carolina when ethnic and racial groups were compared.

Variables such as marital status, family network support, and no tobacco use during pregnancy were thought to be variables that account for these differences.

In the following tables and figures, here are some noteworthy observations:

- From 2004 to 2008 there was an 8% decline in the number of births in Lake County, 10,272 to 9,459.
- The number of births to teenage mothers during this time period has ranged from 686 (6.7%) in 2004 to 725 (7.3%) in 2007. Note: Young paternal age is also a contributor to high risk birth outcomes.
- The percent of women who receive early pre-natal care (care in the first trimester) has been increasing for all ethnic/racial groups and has exceeded 80% for all mothers since 2006.
- During this same period there was a 13.2% increase in the number of infants born to unmarried women.
- The number of births to unmarried women has trended upward and was 31% in 2008.
- In the Hispanic community, the percent of births to unmarried women is 50% in 2008.
- In the African-American community, the percent of births to unmarried women is about 70% since 2005.

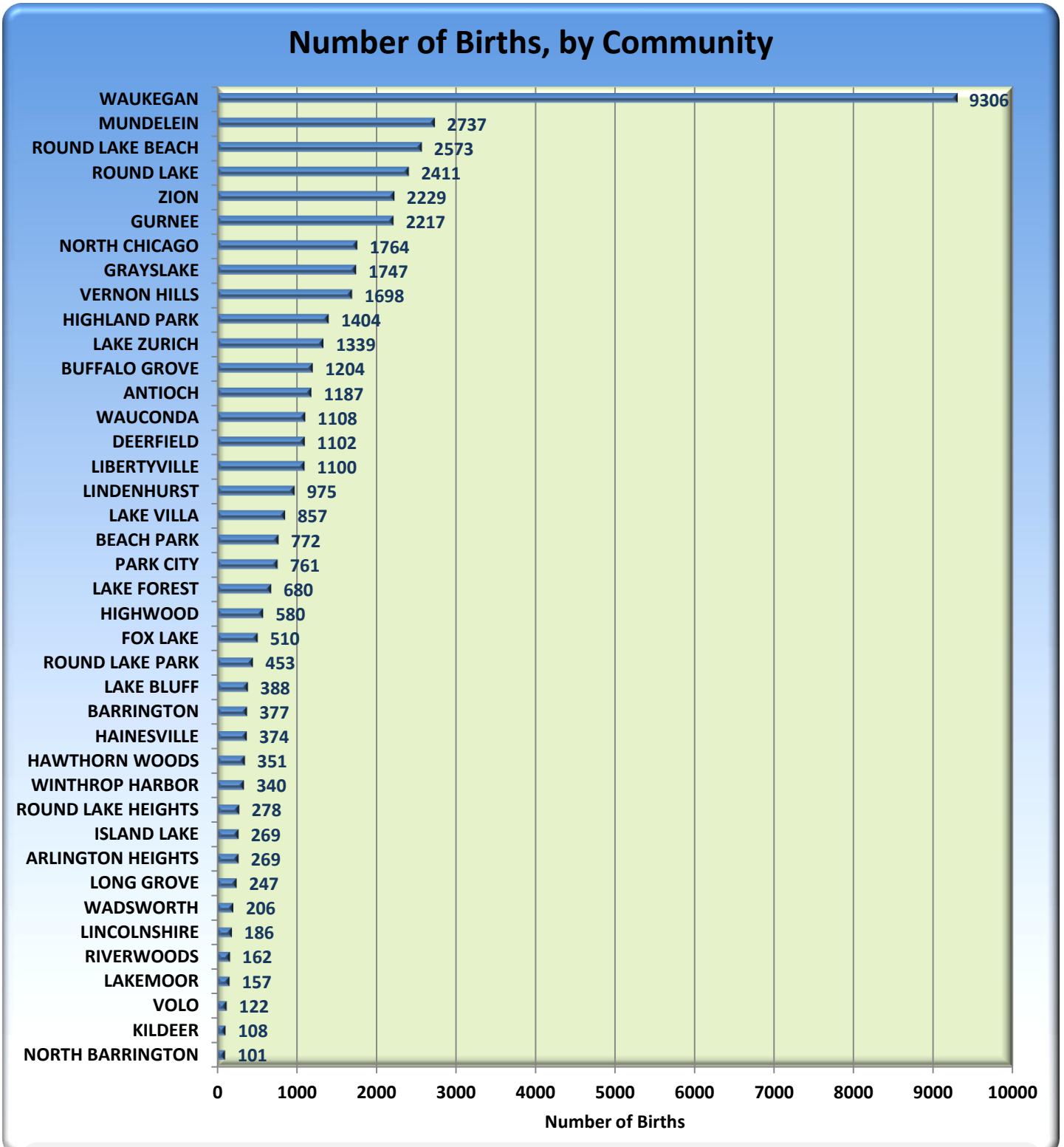
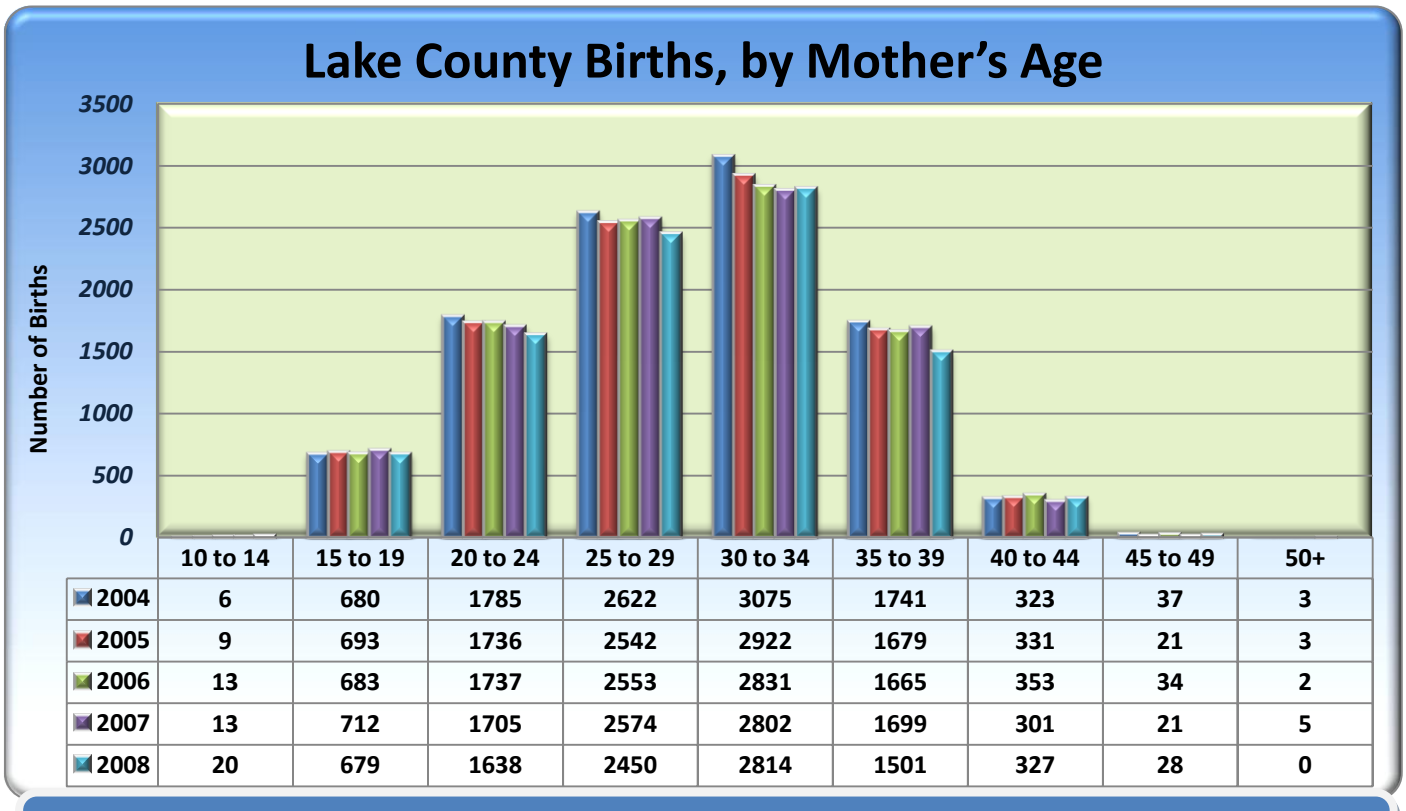


Figure 3.1 Number of Births, by Community (2004-2008)
Source: IDPH Vital Statistics (2004-2008).

Table 3.2 Birth Outcome Measures: Lake County, by Race/Ethnicity (2003-2007)			
Birth Outcome Measures (%)	Non-Hispanic		Hispanic
	White	*African American*	
Low birth Weight (<2500 gm)	7.9%	13.4%	6.5%
Premature Births (<37 weeks)	10.6%	16.9%	7.7%
Births to Women under 18	3.6%	18.0%	12.0%
Births to Women 40-45	5.0%	1.9%	1.8%
Births to Unmarried Women	13.6%	69.5%	46.9%
No Care in the First Trimester	9.7%	22.0%	18.6%

Source: IDPH Vital Statistics (2003-2007).



	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50+
2004	6	680	1785	2622	3075	1741	323	37	3
2005	9	693	1736	2542	2922	1679	331	21	3
2006	13	683	1737	2553	2831	1665	353	34	2
2007	13	712	1705	2574	2802	1699	301	21	5
2008	20	679	1638	2450	2814	1501	327	28	0

Figure 3.2 Lake County Births, by Mother's Age (2004-2008)
Source: IDPH Vital Statistics (2004-2008).

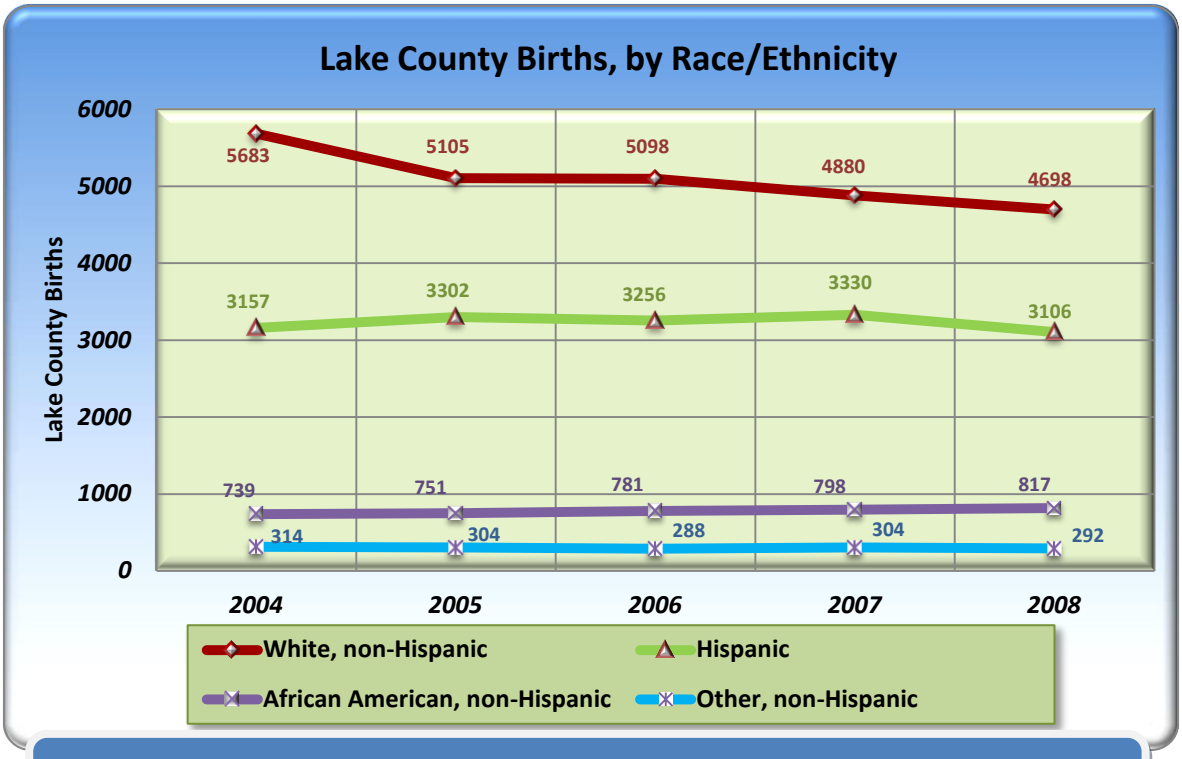


Figure 3.3 Lake County Births, by Race/Ethnicity (2004-2008)
Source: IDPH Vital Statistics (2004-2008).

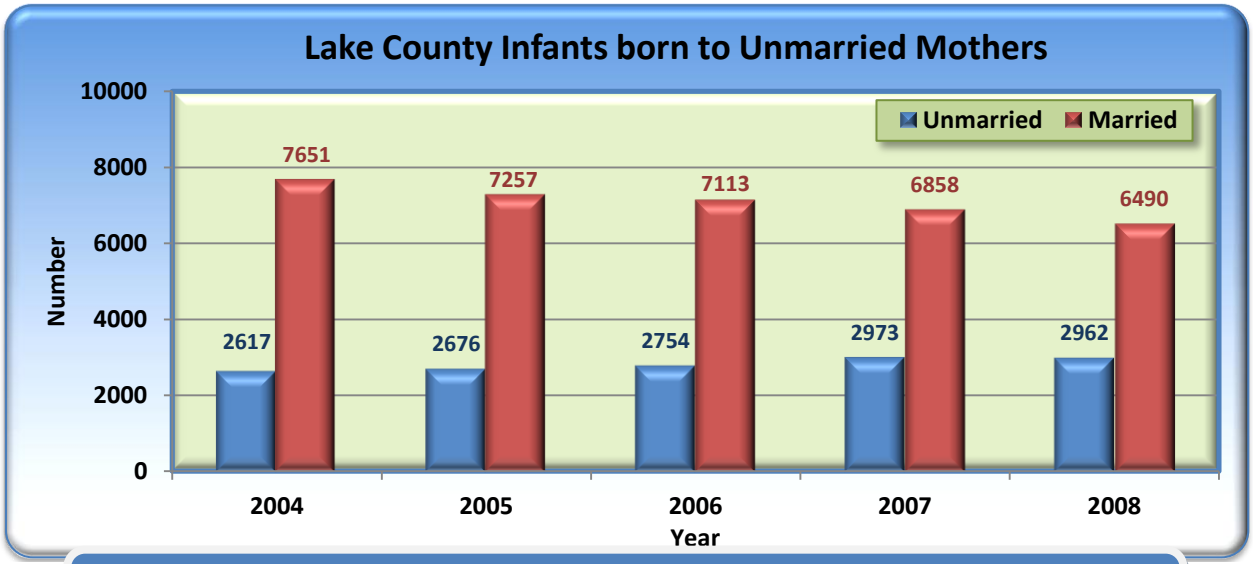
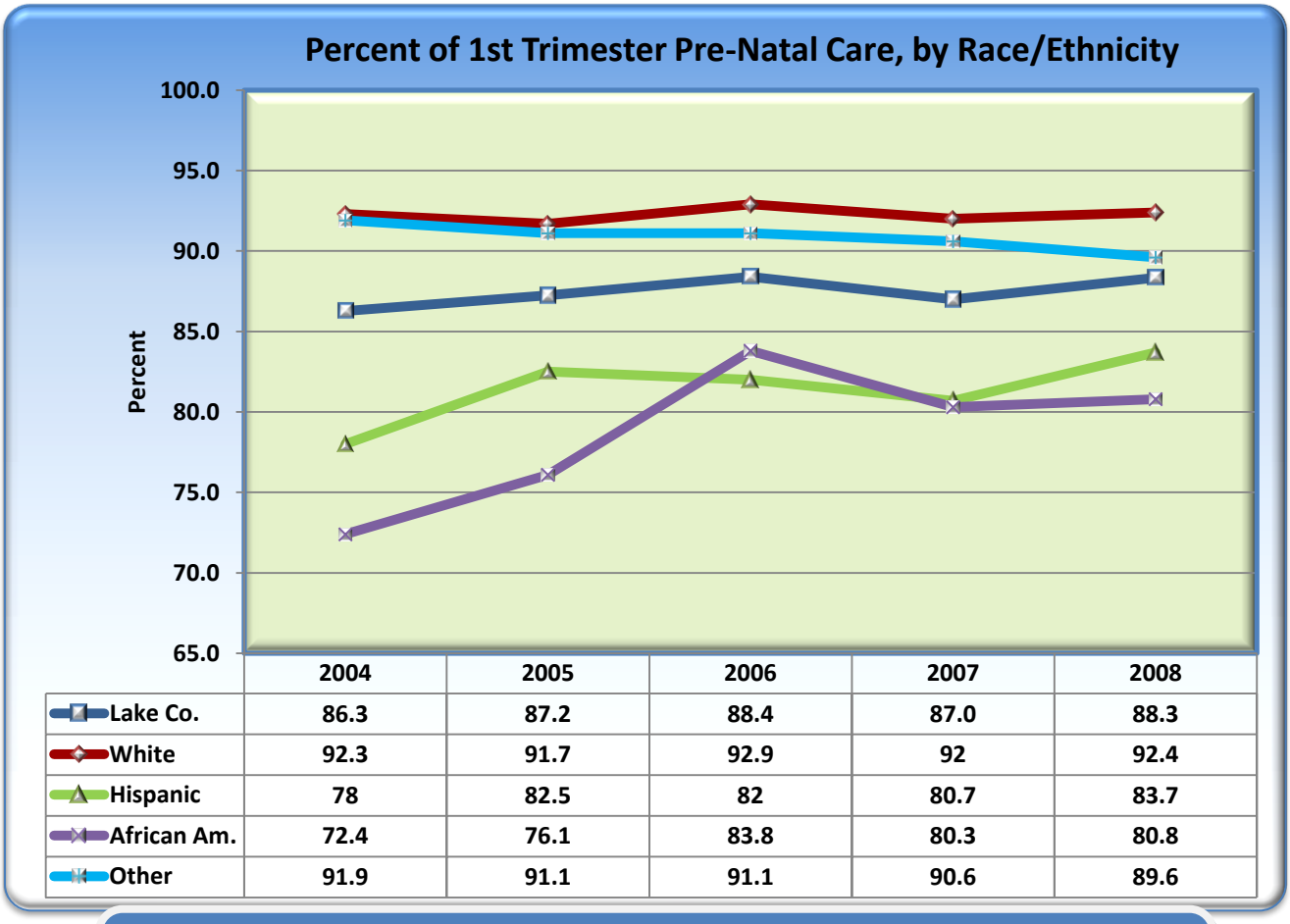
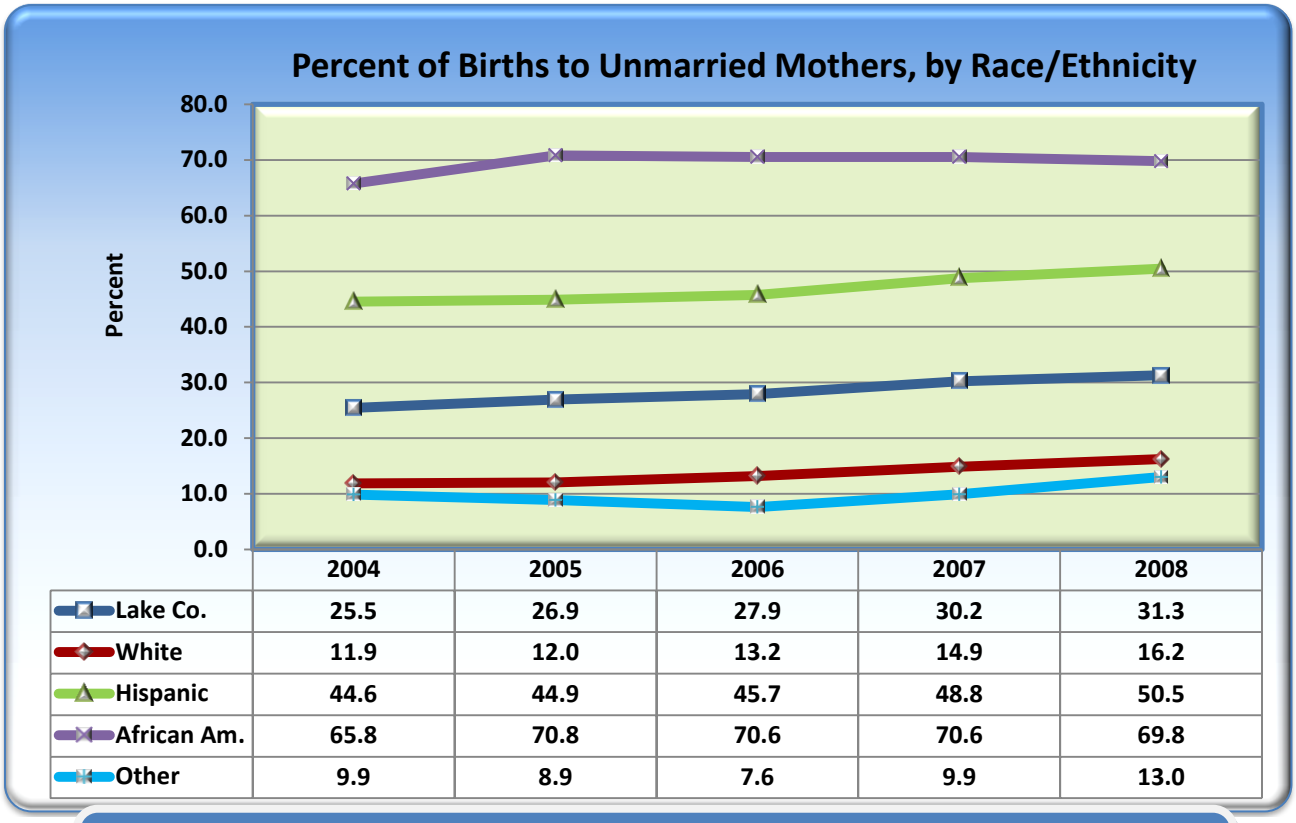


Figure 3.4 Lake County Infants born to Unmarried Mothers (2004-2008)
Source: IDPH Vital Statistics (2004-2008).



	2004	2005	2006	2007	2008
Lake Co.	86.3	87.2	88.4	87.0	88.3
White	92.3	91.7	92.9	92	92.4
Hispanic	78	82.5	82	80.7	83.7
African Am.	72.4	76.1	83.8	80.3	80.8
Other	91.9	91.1	91.1	90.6	89.6

Figure 3.5 Percent of 1st Trimester Pre-Natal Care, by Race/Ethnicity (2004-2008)
Source: IDPH Vital Statistics (2004-2008).

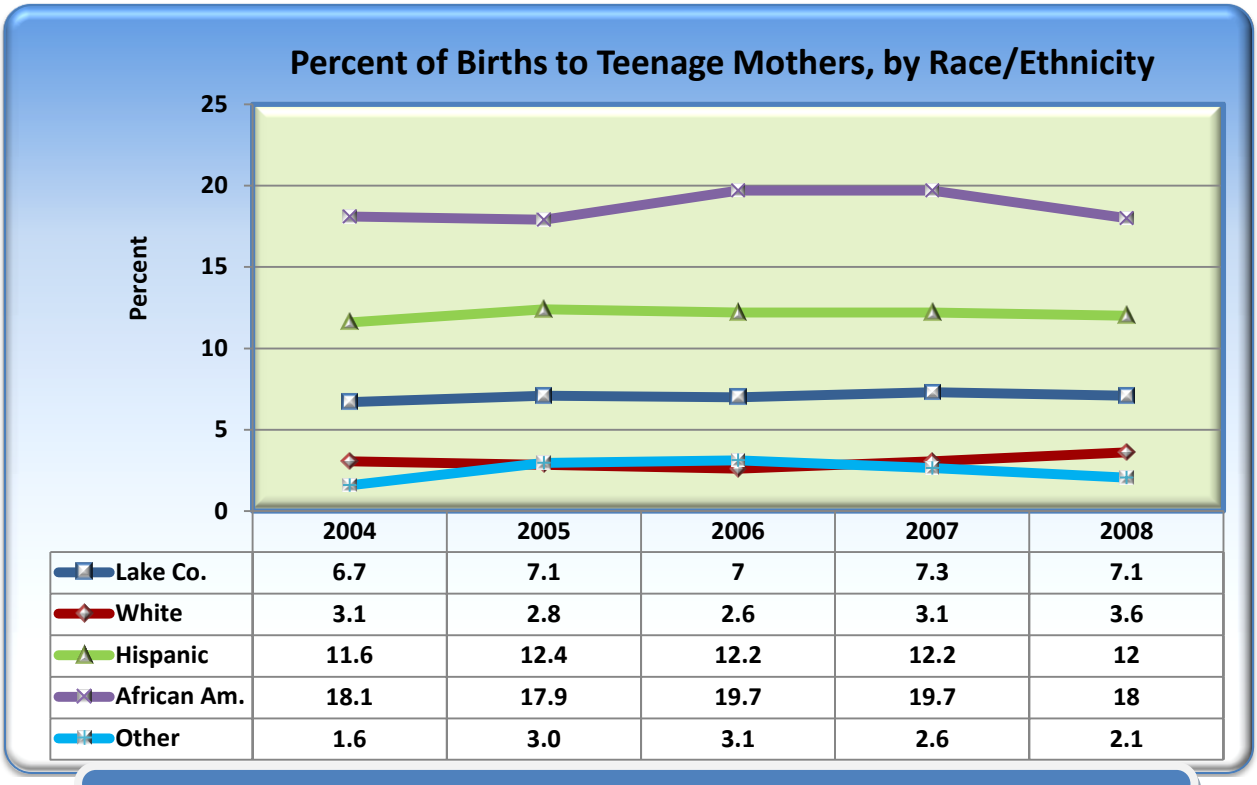


	2004	2005	2006	2007	2008
Lake Co.	25.5	26.9	27.9	30.2	31.3
White	11.9	12.0	13.2	14.9	16.2
Hispanic	44.6	44.9	45.7	48.8	50.5
African Am.	65.8	70.8	70.6	70.6	69.8
Other	9.9	8.9	7.6	9.9	13.0

Figure 3.6 Percent of Births to Unmarried Mothers, by Race/Ethnicity (2004-2008)
Source: IDPH Vital Statistics (2004-2008).

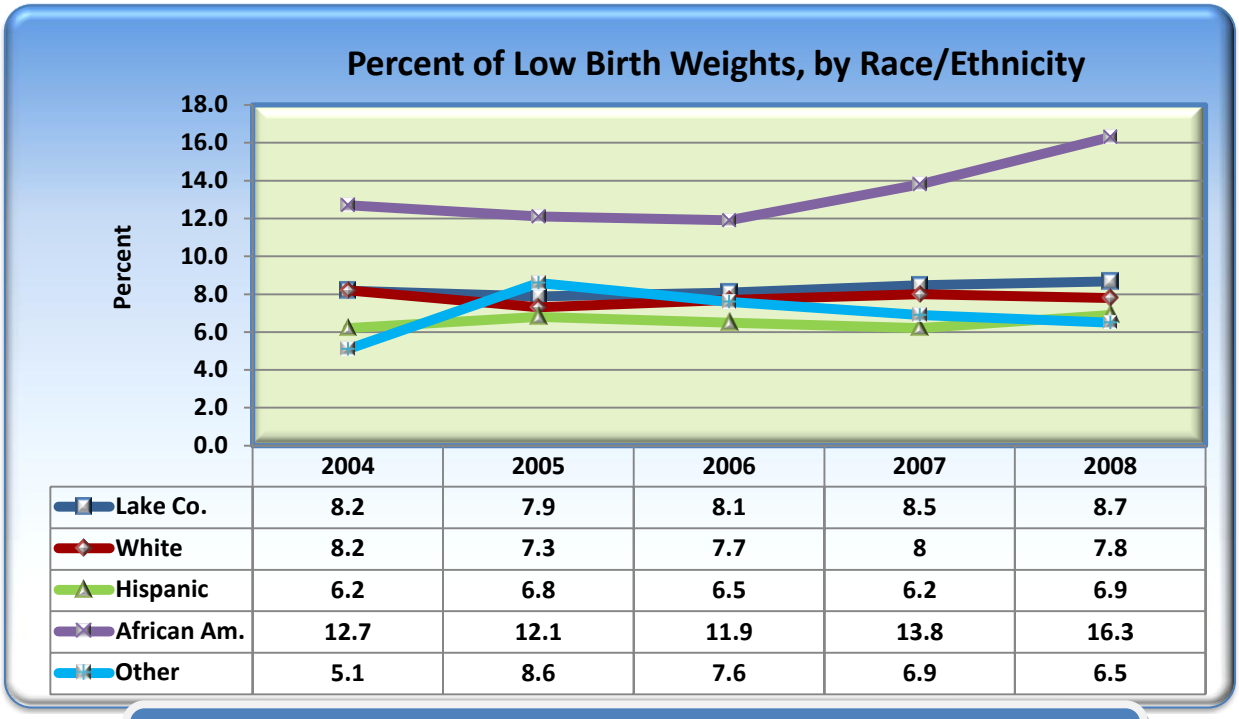
Summary of Birth Outcomes by Race/Ethnicity

1. The percent of births to teenage mothers in Lake County has been approximately 7% from 2004 through 2008.
    a. The percent of births to teenage Hispanic women as been about 12%.
    b. The Percent of births to teenage African-American women has been between 18 and 20%
2. The percent of low birth weight (LBW) babies born to Lake County residents has been in the range of 8.0-8.7%.
    a. LBW babies born to Hispanic women have consistently been the lowest among the major ethnic/racial communities.
    b. LBW babies born to African American women decreased from 2004 to 2006, but then increased by 4% between 2006 and 2008.
    c. Between 9-10% of babies born to Lake County residents are premature (gestational age <37 weeks).
    d. Hispanic women consistently have the lowest percent of premature births.
    e. Premature births among white women have been in the 10-11% range.
    f. Premature births to African American women have been between 10-14%.



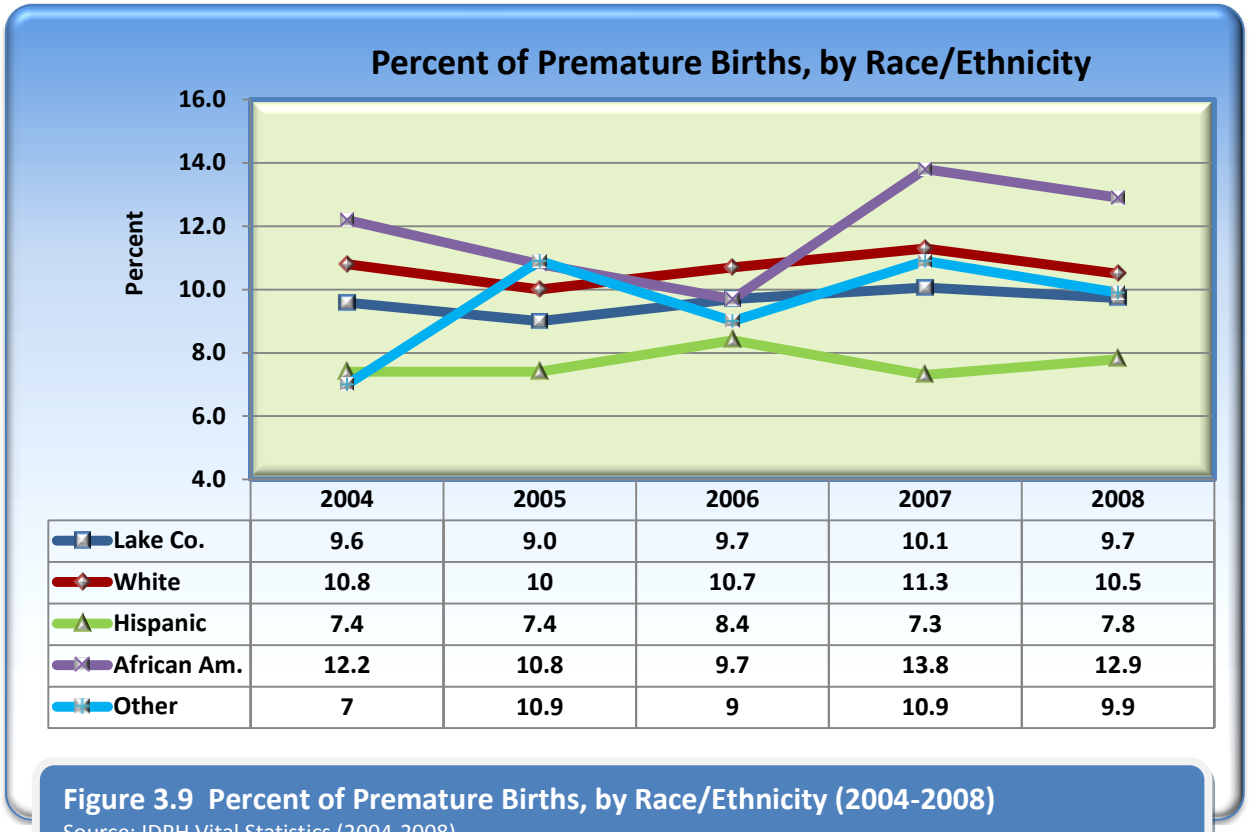
	2004	2005	2006	2007	2008
Lake Co.	6.7	7.1	7	7.3	7.1
White	3.1	2.8	2.6	3.1	3.6
Hispanic	11.6	12.4	12.2	12.2	12
African Am.	18.1	17.9	19.7	19.7	18
Other	1.6	3.0	3.1	2.6	2.1

Figure 3.7 Percent of Births to Teenage Mothers, by Race/Ethnicity (2004-2008)
Source: IDPH Vital Statistics (2004-2008).



	2004	2005	2006	2007	2008
Lake Co.	8.2	7.9	8.1	8.5	8.7
White	8.2	7.3	7.7	8	7.8
Hispanic	6.2	6.8	6.5	6.2	6.9
African Am.	12.7	12.1	11.9	13.8	16.3
Other	5.1	8.6	7.6	6.9	6.5

Figure 3.8 Percent of Low Birth Weights, by Race/Ethnicity (2004-2008)
Source: IDPH Vital Statistics (2004-2008).



	2004	2005	2006	2007	2008
Lake Co.	9.6	9.0	9.7	10.1	9.7
White	10.8	10	10.7	11.3	10.5
Hispanic	7.4	7.4	8.4	7.3	7.8
African Am.	12.2	10.8	9.7	13.8	12.9
Other	7	10.9	9	10.9	9.9

Figure 3.9 Percent of Premature Births, by Race/Ethnicity (2004-2008)
Source: IDPH Vital Statistics (2004-2008).

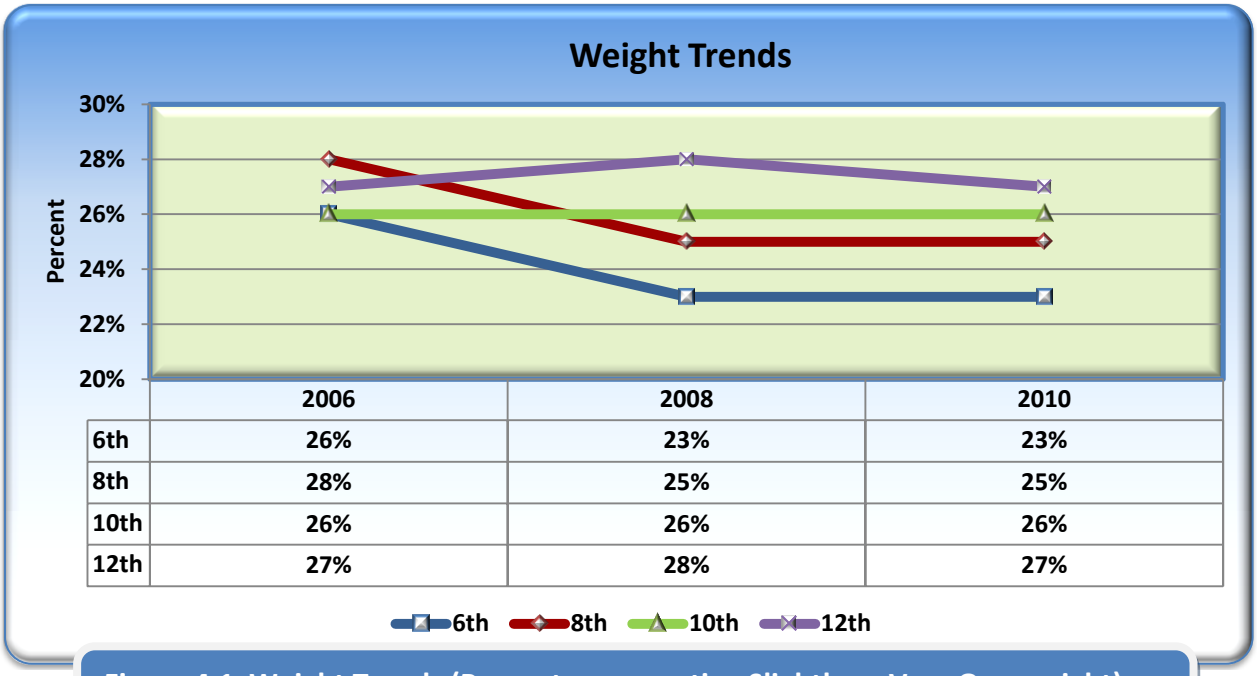
Section IV: Youth Health Behaviors

The Illinois Youth Survey (2006, 2008, and 2010)

Data from the Illinois Youth Survey (IYS), which was administered by school districts in Lake County in 2006, 2008, and 2010, was used to look at the scope and trends in adolescent weight, nutrition, and physical activity. The publicly available data is only released on an aggregate basis, although individual school districts do receive the results of their student's responses. In 2006, 5652 students from 22 schools completed the survey. In 2008 and 2010 substantially more schools participated in the survey. In 2008, 882 schools administered the survey and 19,156 students returned their responses. In 2010, 1108 schools in Lake County participated and 19,432 students returned usable responses.

Weight Trends

Between 23 and 28% of respondents described themselves as Slightly or Very Overweight, with the results of 2008 and 2010 being very similar (see Figure 4.1).

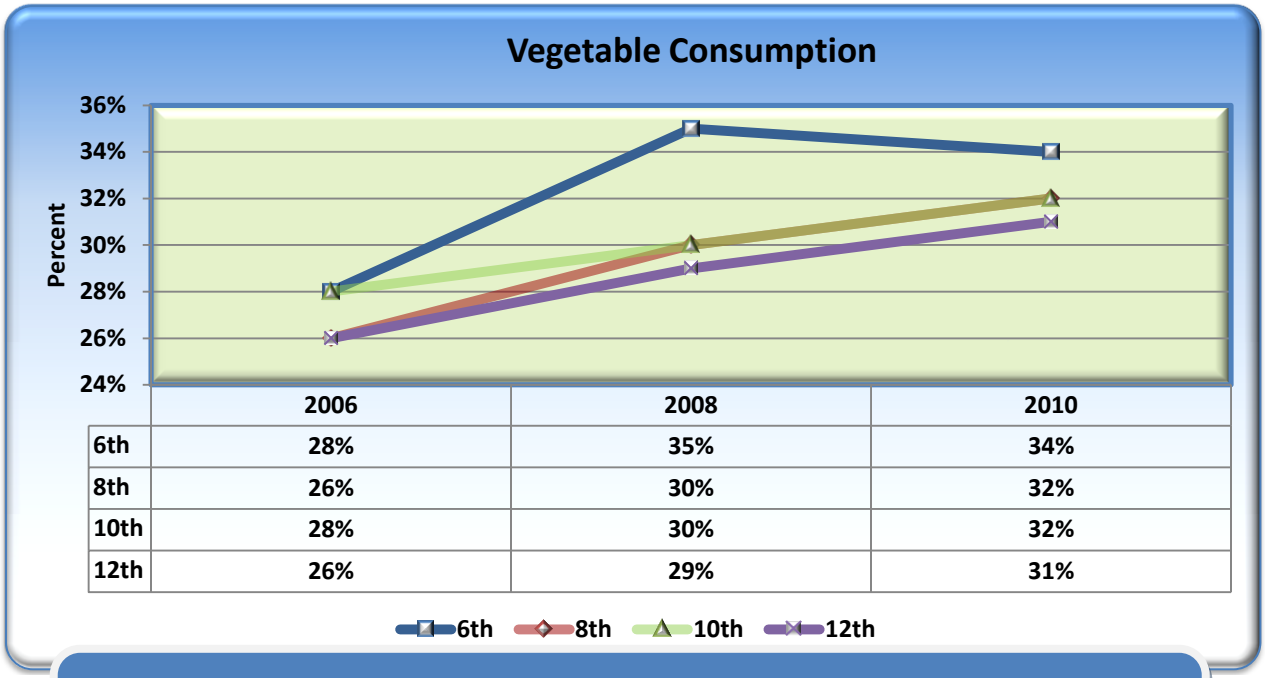


	2006	2008	2010
6th	26%	23%	23%
8th	28%	25%	25%
10th	26%	26%	26%
12th	27%	28%	27%

Figure 4.1 Weight Trends (Percentage reporting Slightly or Very Overweight)
Source: Illinois Youth Survey (Years: 2006, 2008, 2010; Students: 6th, 8th, 10th, and 12th grade).

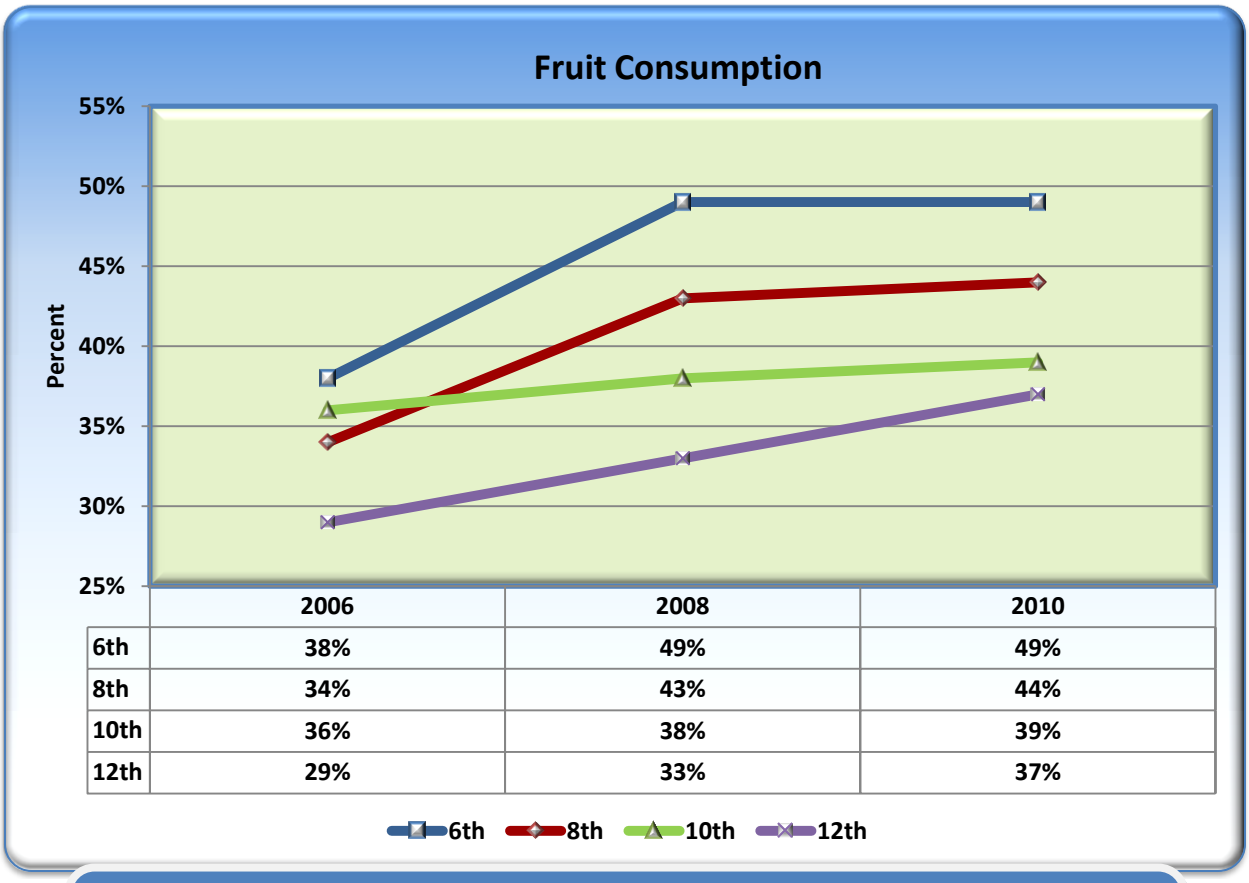
Nutrition Trends

Students reported eating more fruit than vegetables. But less than 50% report eating two or more servings of fruit per day in 6th grade, and consumption declines in later grades (See Figures 4.2 and 4.3).



	2006	2008	2010
6th	28%	35%	34%
8th	26%	30%	32%
10th	28%	30%	32%
12th	26%	29%	31%

Figure 4.2 Vegetable Consumption
(Percentage reporting eating vegetables 2x or more per day)
Source: Illinois Youth Survey (Years: 2006, 2008, 2010; Students: 6th, 8th, 10th, and 12th grade).



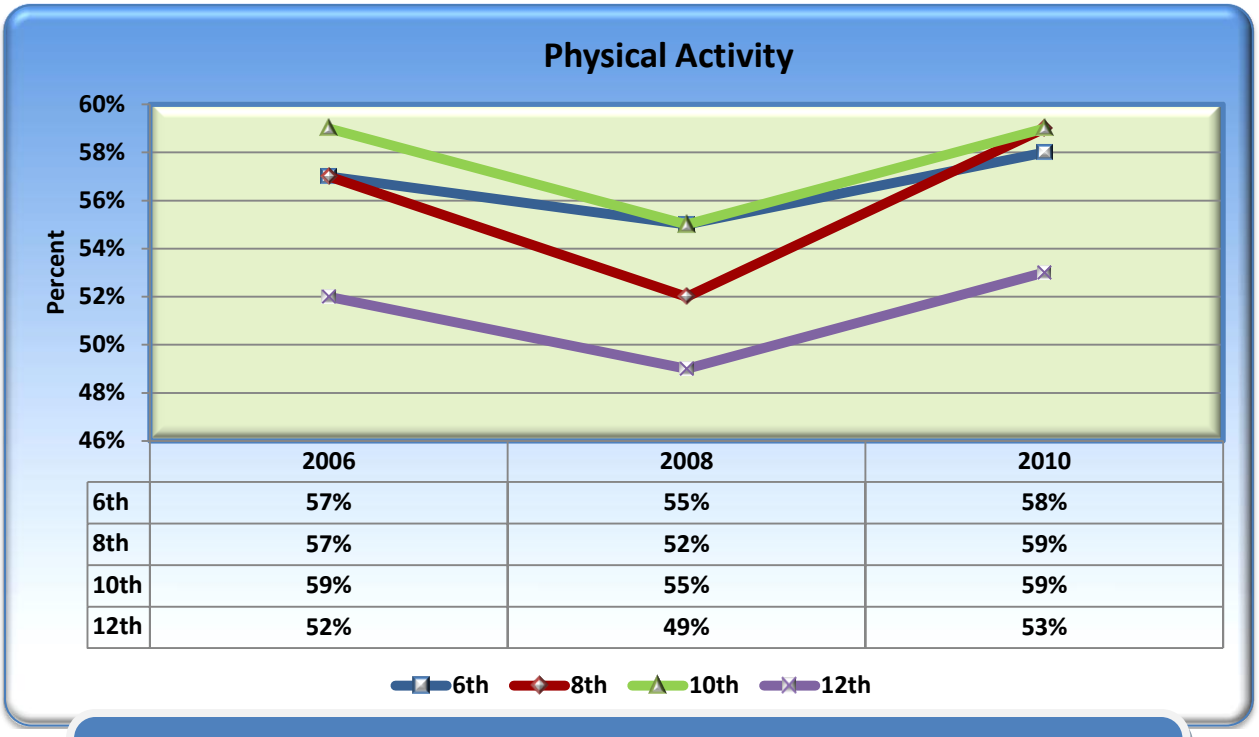
	2006	2008	2010
6th	38%	49%	49%
8th	34%	43%	44%
10th	36%	38%	39%
12th	29%	33%	37%

Figure 4.3 Fruit Consumption
(Percentage reporting eating fruit 2x or more per day)
Source: Illinois Youth Survey (Years: 2006, 2008, 2010; Students: 6th, 8th, 10th, and 12th grade).

Physical Activity Trends

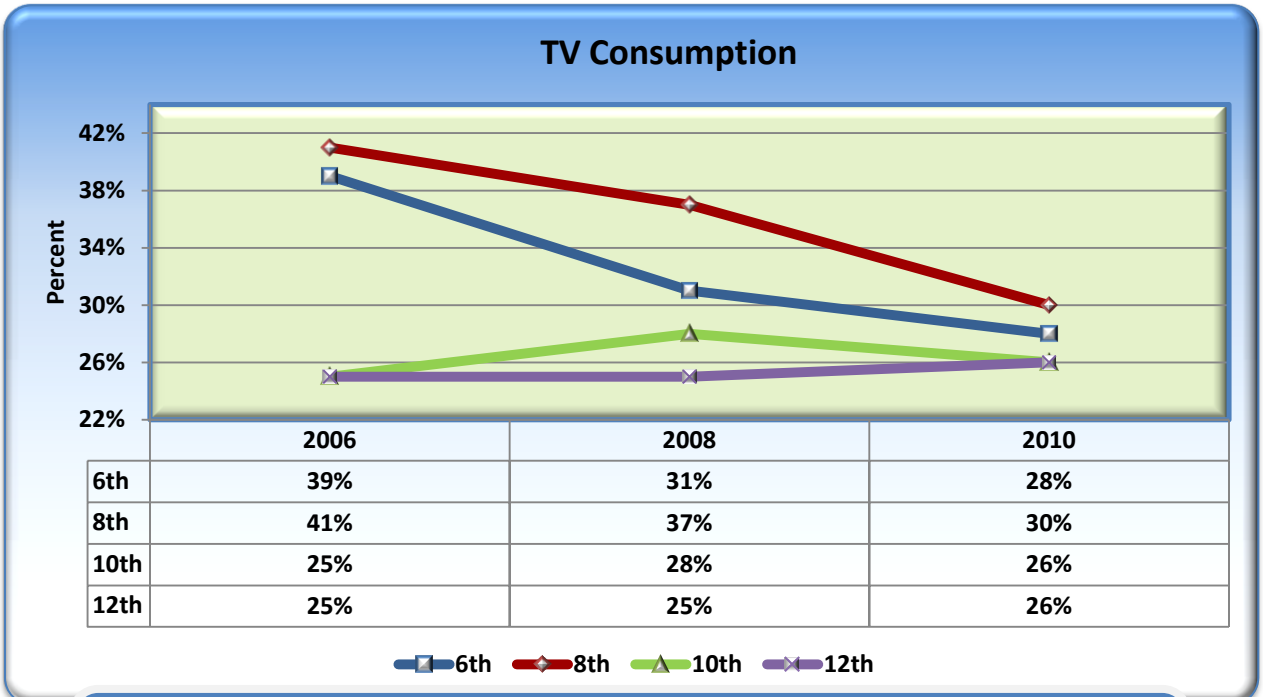
Forty-nine to fifty-nine percent of respondents report participating in a physical activity five or more days per week (see Figure 4.4). Reported frequency of physical activity was higher in 2010 compared to 2008 for all grades so the message of the importance of an active lifestyle and opportunities to engage in daily physical activity may be having an impact.

Likewise, the percentages of students who said they watch 3 or more hours of television on school days (Figure 4.5) generally decline from 2008 to 2010 so the messages and parental restrictions on TV may be having an impact. It may also reflect the substitution of screen time on other electronic devices in place of television.



	2006	2008	2010
6th	57%	55%	58%
8th	57%	52%	59%
10th	59%	55%	59%
12th	52%	49%	53%

Figure 4.4 Physical Activity
(Percentage reporting physical activity 5 or more days per week)
Source: Illinois Youth Survey (Years: 2006, 2008, 2010; Students: 6th, 8th, 10th, and 12th grade).



	2006	2008	2010
6th	39%	31%	28%
8th	41%	37%	30%
10th	25%	28%	26%
12th	25%	25%	26%

Figure 4.5 TV Consumption
(Percentage reporting watching TV 3 or more hours on school days)
Source: Illinois Youth Survey (Years: 2006, 2008, 2010; Students: 6th, 8th, 10th, and 12th grade).

Alcohol, Tobacco, and Other Drugs

Use/abuse of alcohol, tobacco, and other drugs is not only illegal, it can have serious adverse effects on an adolescent's academic performance and the development of peer and adult interpersonal relationships. In Lake County there are several school-based programs as well as community and county coalitions that are trying to limit and reduce the use/abuse of illegal substances through education, and changes in policies and ordinances. An important mechanism for evaluating the impact of these efforts is the Illinois Youth Survey, which is voluntarily administered to students by school districts.

The number of students who use or abuse alcohol, tobacco, or other drugs within the past 30 days is a primary indicator of the scope of the problem of use/abuse. Protective factors or attitudes that reduce use/abuse are:

1. Perception of harm: Students who view a substance as harmful to their health or mental condition are less likely to use the substance.
2. Perception of use by peers or other students: Students who believe that, "everyone is doing it," may be less inhibited in experimenting themselves.
3. The ease or difficulty in obtaining an illegal or potentially abusive substance: Substances that are not perceived as harmful, frequently used by peers, and are easy to obtain may increase the frequency of abusive behavior among students.

Table 4.1 Use of Substances by Youth within the past 30 days				
Health Behavior	**Lake County 2008**	**Lake County 2010**	**Illinois 2010**	**National 2010**
6th Grade				
Cigarette Use	1.0%	1.0%	1.3%	N/A
Other Tobacco Use	1.0%	1.0%	N/A	N/A
Alcohol Use	5.0%	7.0%	7.3%	N/A
Binge Drinking	2.0%	2.0%	1.5%	N/A
Marijuana Use	0.0%	0.0%	1.0%	N/A
Inhalant Use	6.0%	5.0%	4.5%	N/A
8th Grade				
Cigarette Use	4.0%	4.0%	5.1%	6.5%
Other Tobacco Use	5.0%	4.0%	N/A	N/A
Alcohol Use	18.0%	16.0%	20.5%	14.9%
Binge Drinking	7.0%	6.0%	7.9%	N/A
Marijuana Use	6.0%	7.0%	9.1%	6.5%
Inhalant Use	6.0%	6.0%	6.1%	3.8%
10th Grade				
Cigarette Use	9.0%	7.0%	9.3%	13.1%
Other Tobacco Use	8.0%	9.0%	N/A	N/A
Alcohol Use	31.0%	28.0%	31.4%	30.4%
Binge Drinking	15.0%	14.0%	15.7%	N/A
Marijuana Use	15.0%	16.0%	18.3%	15.9%
Inhalant Use	3.0%	3.0%	3.9%	2.2%
12th Grade				
Cigarette Use	16.0%	15.0%	17.6%	20.1%
Other Tobacco Use	18.0%	17.0%	17.6%	N/A
Alcohol Use	50.0%	48.0%	43.6%	43.5%
Binge Drinking	31.0%	29.0%	23.4%	N/A
Marijuana Use	24.0%	27.0%	25.3%	20.6%
Inhalant Use	1.0%	2.0%	2.9%	1.2%

Source: Illinois Youth Survey (2008, 2010).

The attached tables indicate the experience of Lake County adolescents as taken from the Illinois Youth Surveys administered in 2008 and 2010. The results of selected measures are compared to similar data from the State of Illinois and to National data when it is available.

Regarding self-reported use of substances (see Table 4.1), cigarette and alcohol use reported by 8th, 10th, and 12th grade students stayed the same or declined for all grades. Except for alcohol use among 12th graders, the proportion of students who report using these substances was lower in Lake County than in Illinois. Alcohol is the substance of choice in all three grades that students are most likely to report using in the past 30 days. Of the 24 indicators surveyed 7 did not change between 2008 and 2010. Eleven indicators improved and 6 indicated an adverse direction to the trend.

Table 4.2 Perception of Harm Data*				
Health Behavior	**Lake County 2008**	**Lake County 2010**	**Illinois 2010**	**National 2010**
6th Grade				
Smoke 1+ packs/day	66.0%	60.0%	49.9%	N/A
1-2 drinks/day	36.6%	32.0%	26.3%	N/A
5+ drinks/week	47.0%	42.0%	35.1%	N/A
Marijuana regularly	78.0%	75.0%	69.8%	N/A
Marijuana 1-2x/week	51.0%	44.0%	40.4%	N/A
Inhalant use regularly	62.0%	57.0%	N/A	N/A
8th Grade				
Smoke 1+ packs/day	67.0%	65.0%	60.1%	59.1%
1-2 drinks/day	30.0%	31.0%	25.3%	31.5%
5+ drinks 1-2x/week	43.0%	46.0%	38.8%	55.8%
Marijuana regularly	74.0%	72.0%	65.8%	69.8%
Marijuana 1-2x/week	46.0%	45.0%	39.0%	N/A
Inhalant use regularly	73.0%	73.0%	66.1%	58.1%
10th Grade				
Smoke 1+packs/day	71.0%	72.0%	64.5%	67.3%
1-2 drinks/day	31.0%	32.0%	28.6%	33.8%
5+ drinks 1-2x/week	44.0%	43.0%	39.9%	54.2%
Marijuana regularly	58.0%	52.0%	50.8%	59.5%
Marijuana 1-2x/week	33.0%	29.0%	29.4%	N/A
Inhalant use regularly	79.0%	78.0%	69.0%	66.8%
12th Grade				
Smoke 1+ packs/day	70.0%	69.0%	64.2%	74.9%
1-2 drinks/day	30.0%	27.0%	28.7%	23.7%
5+ drinks 1-2x/week	35.0%	36.0%	35.3%	48.0%
Marijuana regularly	42.0%	38.0%	39.3%	52.4%
Marijuana regularly	24.0%	21.0%	22.0%	N/A
Inhalant use regularly	81.0%	76.0%	69.7%	N/A

Source: Illinois Youth Survey (2008, 2010).
*** Based on the question "How much do you think people risk harming themselves (physically or in other ways) if they…"**

Perhaps more problematic is the change in the perception of harm between the 2008 and 2010 surveys. For most of the substances the perception of harm decreased between the surveys. In most instances the change was slight and the reported perception of harm among students in Lake County is higher than for the state (see Table 4.2).

An important educational tool is the data that can help students assess the actual percent of students who use or abuse illegal substance. In every grade the perception of peers who use illegal substances was higher by 58 to 75% than was actually reported by the students themselves. Demonstrating to students that their behavior and choices are normative and they are not in the minority has protective value in helping them resist experimentation. The percent of students who say that it is sort of easy or very easy to obtain alcohol or marijuana increased with each grade. Alcohol is the easiest to obtain. Between the 2008 and 2010 surveys 12th graders report it is more difficult to obtain marijuana. Report on the ease of obtaining alcohol and marijuana in the other grades was essentially unchanged.

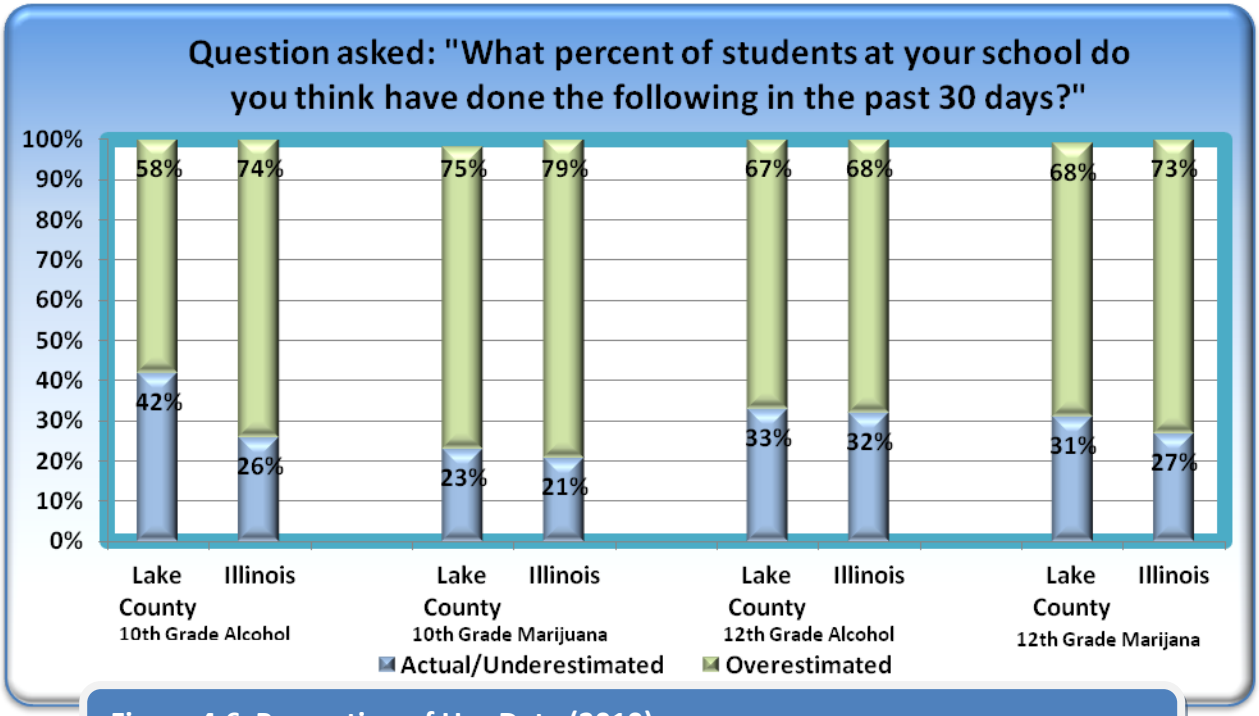


Figure 4.6 Perception of Use Data (2010)
Source: Illinois Youth Survey (Year: 2010; Students: 10th and 12th grade).

Table 4.3 Ease of Access (percent reporting sort of easy or very easy)*

Health Behavior	Lake County 2008	Lake County 2010	Illinois 2010	National 2010
6th Grade				
Alcohol	17.0%	16.0%	16.1%	N/A
Marijuana	5.0%	5.0%	6.0%	N/A
8th Grade				
Alcohol	41.0%	40.0%	41.8%	61.8%
Marijuana	22.0%	24.0%	27.6%	39.8%
10th Grade				
Alcohol	63.0%	64.0%	60.2%	80.9%
Marijuana	53.0%	54.0%	55.3%	69.3%
12th Grade				
Alcohol	77.0%	77.0%	73.6%	93.2%
Marijuana	74.0%	70.0%	69.5%	81.1%

Source: Illinois Youth Survey (2008, 2010).
*** Based on the question "How easy is it to get…?"**

Section V: Environmental Health

Environmental health is concerned with all aspects of the natural and manmade environment that affect the health and health outcomes of people. This includes biological, chemical and physical agents that pose a risk to the public's health. At its core, environmental health is meant to prevent communicable diseases. In an effort to identify risks before they become hazardous, prevention is generally accomplished through inspections and sampling. An example would be routine inspections and sampling of non community water well systems attempting to identify microbial contaminants in the water prior to a waterborne illness outbreak.

Additionally, the Lake County Health Department participates in disease surveillance. Using epidemiological methods, surveillance aims to identify disease early, through the systematic collection and identification of data reflecting the health of the public. When surveillance data identifies a disease, such as in the case of a foodborne illness outbreak, environmental health inspectors and technicians switch to mitigation to identify the source and stop the spread of disease. The Lake County Health Department and its community and governmental partners are active in many phases of environmental health. Using these two general categories, primary prevention through inspections and sampling as well as secondary prevention using surveillance and mitigation techniques, environmental health will be discussed in the following section.

WATER QUALITY

Non-Community Wells in Lake County

Non-community public water supply wells are those with 15 or more service connections, or those that regularly serve an average of at least 25 individuals daily at least 60 days out of the year. They are not intended to supply a permanent population on a 24-hour per day, year-around basis. These systems generally serve schools, restaurants, offices, daycares, churches, forest preserves/parks and manufacturing facilities that are not part of a municipal water system.

In 1990, the Lake County Health Department took over the non-community water well inspection and sampling program from IDPH. At least once per year, each non-community well is inspected and sampled for total coliforms. Total coliforms are indicator bacteria, meaning they show that there is a non specific problem with the water or well. Rarely is there evidence that indicates the water system had been breached or compromised, the facility is usually in compliance too. In most instances when a facility has an unsatisfactory water sample (present for coliforms), it is a random occurrence and chlorination of the system usually results in a negative resample result. In 2010 the unsatisfactory rate was about 6.29**%** (986 samples) which has improved drastically over the years (Table 5.1). Additionally, the percent of systems that had a positive sample has decreased since 1998 (Figure 5.1).

Table 5.1 Non-Community Well Sample Results (Total Coliform)

Year	Absent	Present	Percent Positive
1998	1069	236	18.1%
1999	1052	178	14.5%
2000	1032	234	18.5%
2001	1151	178	13.4%
2002	1039	118	10.2%
2003	861	92	9.7%
2004	911	97	9.6%
2005	1013	91	8.2%
2006	984	141	12.5%
2007	1116	138	11.0%
2008	967	100	9.4%
2009	990	108	9.8%
2010	924	62	6.3%

Source: LCHD/CHC, Non-Community Program (2011).

Non-community water well systems are also tested yearly for the level of nitrates. Nitrates enter the well through the soil and can be deposited by fertilizers, animal wastes, septic systems, and decaying organic debris. High levels of nitrates can cause methemoglobinemia or "blue baby syndrome" in infants, a condition that inhibits the ability of hemoglobin to carry oxygen through blood to the body. The Lake County Health Department has not had a non-community well report a high level of nitrates (>10 mg/L) in the last five years.

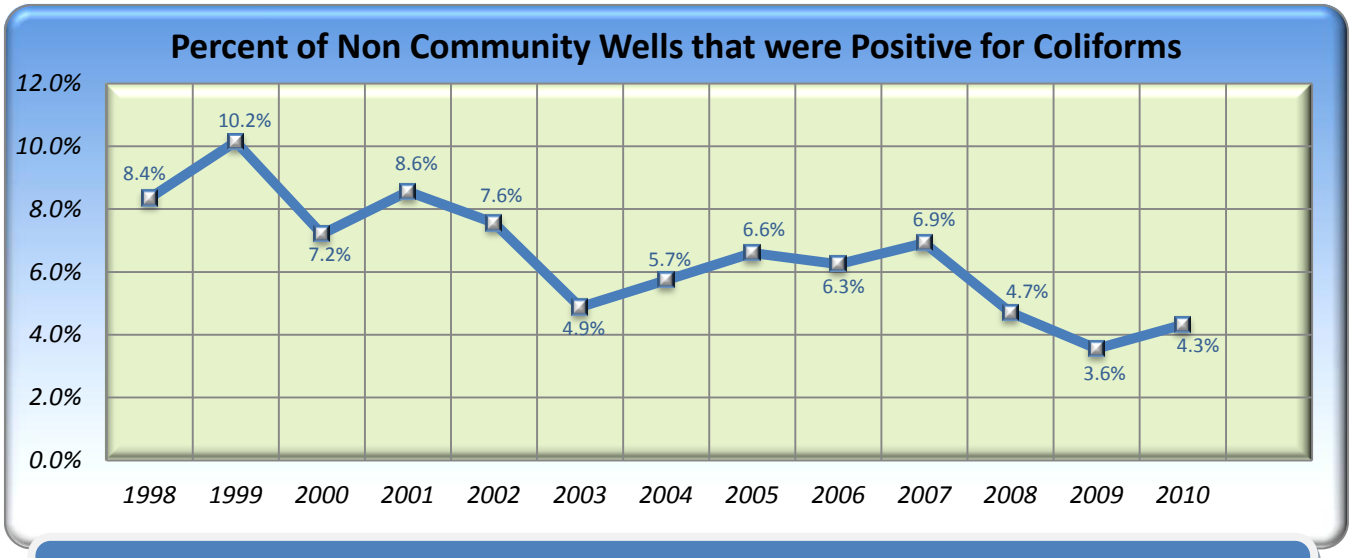


Figure 5.1 Percent of Non Community Wells that were Positive for Coliforms
Source: Lake County Health Department, Non-Community Well Program (2011).

Public Water Supply

Roughly 80% of Lake County Residents receive their drinking water from public water suppliers. In order to assure the water is safe to drink, municipal systems routinely monitor their water, checking for sources of contamination. These sources can be in the form of microbial contaminants, such as viruses or bacteria, inorganic compounds, such as salts or metals, pesticides or herbicides, organic chemicals or radioactive contaminants. The most common contaminant tested for are bacterial coliforms. Coliforms are a microbial contaminant and are indicator bacteria that represent a larger problem in the water system. Total coliforms are tested as present or absent, not as a density because there is no relationship between the amount of coliform bacteria and the amount of pathogenic bacteria. When a routine sample comes back as positive for the presence of total coliform bacteria, a repeat sample is taken within 24 hours. If the resample also tests positive, it is retested for fecal coliforms, a group of bacteria that are a strong indication of the presence of sewage or waste. When a positive sample is found, a precautionary boil order may sent out to all affected residents and businesses urging them to boil their water for a minimum of 5 minutes to eliminate any possible microbiological contaminants.

Table 5.2 Number of Public Drinking Water Samples Positive for Total Coliforms: Illinois and Lake County (% Positive for Lake County)

Year	Illinois	Lake County
2004	1134	37 (<1%)
2005	903	50 (<1%)
2006	1152	79 (<1%)
2007	3132	83 (<1%)
2008	3743	111 (<1%)
2009	2212	76 (<1%)
2010	635	37 (<1%)

Source: IEPA Drinking Water Watch (2011).

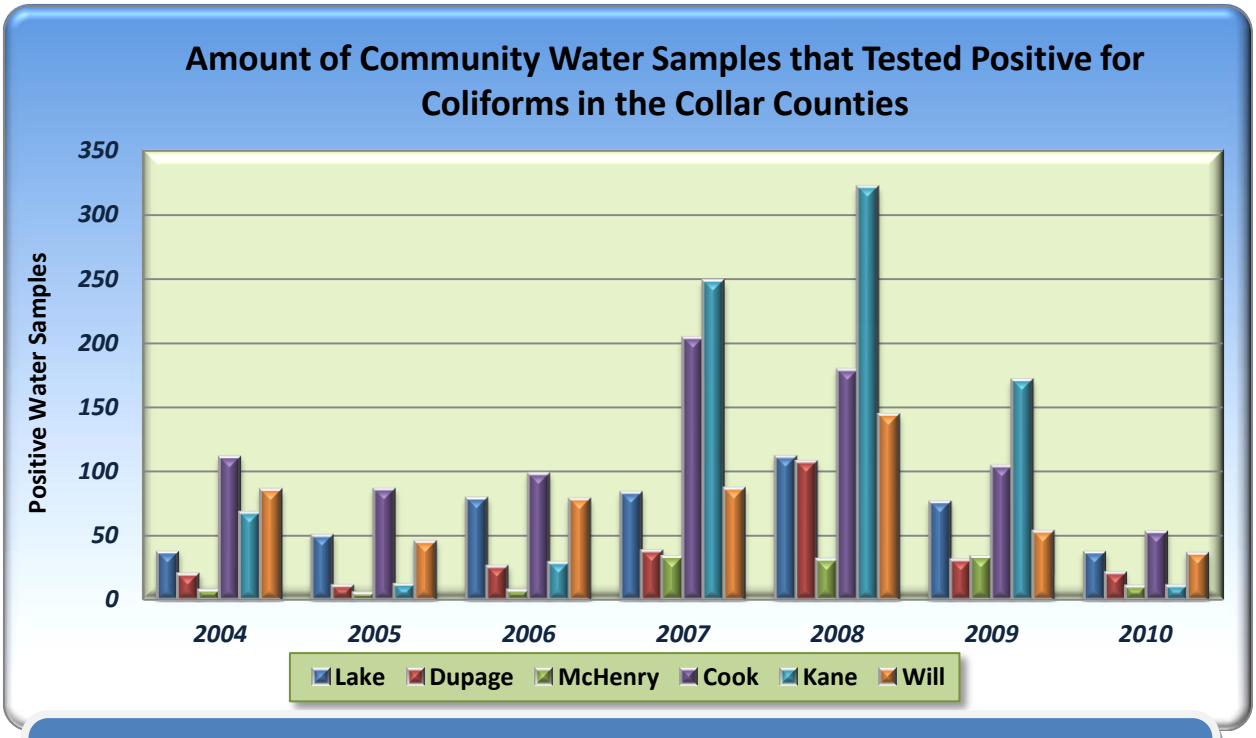
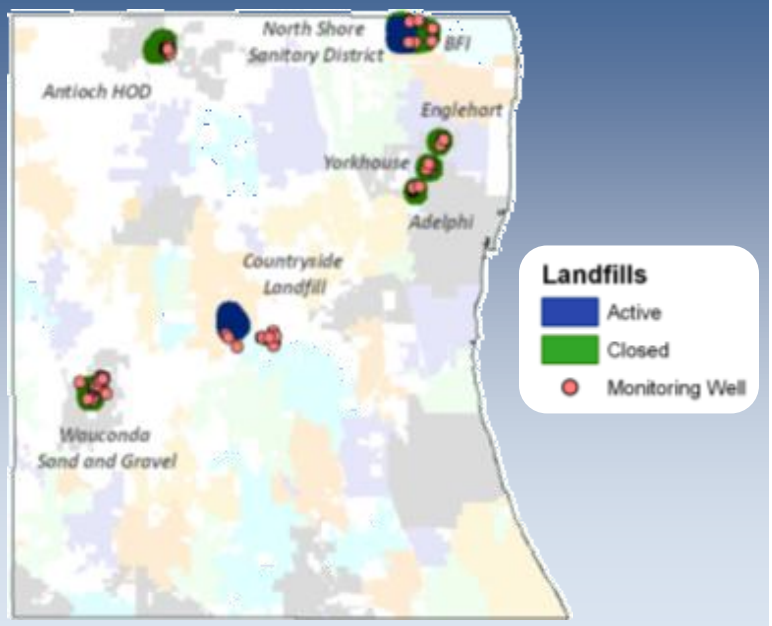


Figure 5.2 Amount of Community Water Samples that Tested Positive for Coliforms in the Collar Counties (2004-2010)
Source: Lake County Health Department, Non-Community Well Program (2011).

Ground Water Monitoring

Map 5.1 Landfill and Monitoring Well Locations in Lake County



Source: LCHD (2011).

Since 1982, the Solid Waste Unit has been monitoring the groundwater quality near the active and closed landfills in the county where residents rely on private wells for their drinking water supply. The current program consists of annual sampling of approximately 80 selected private wells located near nine landfills. Of these, two are operating sites, the remainder are closed sites. The samples are analyzed for ammonia, arsenic, boron, cadmium, chemical oxygen demand, chloride, chromium, copper, cyanide, hardness, iron, lead, manganese, mercury, nickel, nitrate, pH, specific conductivity, sulfate, total dissolved solids, total organic carbon and zinc. The analysis is performed by the Lake County Health Department's laboratory. A second set of samples is analyzed for 61 volatile organic compounds by a private laboratory.

Based on the laboratory results, the groundwater quality near the landfills is satisfactory. One well near the Wauconda Sand and Gravel Landfill, a Superfund Site, has had intermittent detections of vinyl chloride over the past few years, although not in 2011. The concentrations that have been detected were below the maximum contaminant level of 2 parts per billion. This home and 11 neighboring homes were not part of the affected area that were connected to a public water supply following detection of vinyl chloride in the groundwater in the fall of 2003. The residents of the homes are being provided bottled water by the responsible parties for the landfill.

Lake Michigan Beaches

Lake County has 11 swimming beaches located on the shores of Lake Michigan. To assure the water is safe to swim, beginning in 2008, a new technology called SwimCast was utilized to help predict beach closures. SwimCast measures air and water temperature, wind speed and direction, precipitation, relative humidity, wave height, lake stage, insolation (light energy) and other water quality parameters to help predict when E. coli levels are low enough to indicate safe swimming conditions or high enough to call for a swim ban. SwimCast systems provide staff members and beach operators with real-time conditions, allowing for the most accurate and timely decisions regarding the health of Lake County beaches. The Lake County Health Department monitors the lake conditions and tests the water for E. coli 4 days a week Memorial Day through Labor Day. If water samples come back high for E. coli (235 E. coli/100 ml), the management body for the bathing beach is notified and a sign is posted indicating the beach closure. The number of beaches closed due to elevated E. coli counts has decreased substantially since 2002 (Table 5.3).

Table 5.3 Number of Advised Beach Closings Due To Elevated E. coli Counts (2002-2010)

Beach Name	2002	2003	2004	2005	2006	2007	2008	2009	2010
Rosewood Beach	13	16	10	10	7	13	10	4	5
Park Avenue Beach	17	13	11	1	7	14	3	4	5
Forest Park Beach	13	12	19	10	14	28	9	7	4
Sunrise Beach	9	9	6	0	6	8	6	2	5
Nunn Beach	NA	11	15	18	13	45	3	14	10
Waukegan South Beach	54	24	19	12	15	29	20	11	9
Waukegan North Beach	33	23	19	6	10	29	16	4	9
Illinois Beach State Park Resort Beach	NA	NA	20	23	17	17	10	10	10
Illinois Beach State Park South Beach	18	20	23	21	22	24	14	11	10
Illinois Beach State Park North Beach	4	18	7	5	7	15	8	4	5
North Point Marina Beach	46	32	38	49	45	79	50	44	39
Totals	207	178	187	155	163	301	149	115	111

Source: LCHD Lakes Management Unit (2011).

AIR QUALITY

Outdoor Air Quality

Poor outdoor air quality can affect the atmosphere above the ground leading to adverse health conditions in the people on the ground. When the United States Environmental Protection Agency (USEPA) amended the Clean Air Act in 1990, they set National Ambient Air Quality Standards (NAAQS) for pollutants that are considered hazardous to human health. The standards were broken down into two categories, primary and

secondary. Primary standards are limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards are limits set to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. Within the primary standards are six criteria pollutants, those that are deemed to be the most dangerous: Sulfur Dioxide (SO_2), Carbon Monoxide (CO), Particulate Matter (PM_{10}), Particulate Matter ($PM_{2.5}$), Nitrogen Dioxides (NO_2), and Ozone (O_3). Lake County continually meets and exceeds the standards the criteria pollutant emissions[1].

[1] *USEPA Air and Radiation, www.epa.gov (2011).*

Table 5.4 Percent of Days - Air Quality Index Category in Lake County (2005-2009)

Year	Good	Moderate	Unhealthy for sensitive groups	Unhealthy
2005	66.6%	30.4%	3.0%	0.0%
2006	77.0%	22.7%	0.3%	0.0%
2007	78.6%	20.5%	0.8%	0.0%
2008	80.6%	19.4%	0.0%	0.0%
2009	78.1%	21.1%	0.8%	0.0%

Source: Illinois Annual Air Quality Report (2005-2009).

The air quality index is a national standard used to report the level or air pollution based on the six criteria pollutants. The category unhealthy for sensitive groups reflects an increased likelihood of respiratory symptoms and breathing discomfort in sensitive groups, such as those with respiratory diseases or those with asthma. Since 2006, Lake County has had over 75% of their days rated as good air quality (Table 5.4).

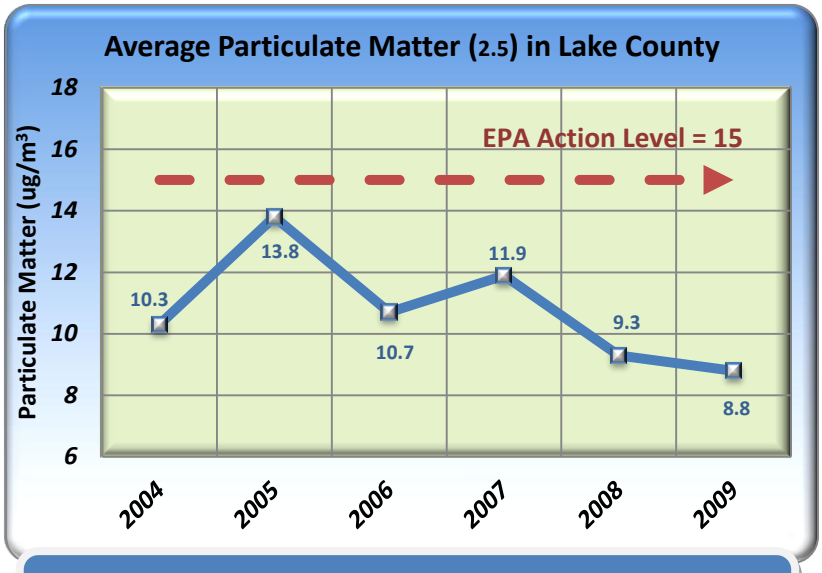


Figure 5.3 Average Particulate Matter in Lake County
Source: Illinois Annual Air Quality Report (2005-2009).

- Particulate Matter is not gaseous; it is in the form of small particles and droplets that aerosolize. The smaller the particle size, the more health damage can be caused. Particulate matter at 2.5µm is the smallest measured size. These small particles aerosolize and enter the body through the respiratory system. The particulate matter can also cause a physical hazard in the form of haze or smog.
- Ozone (O_3) is formed when nitrogen oxides and volatile organic compounds (in the form of hydrocarbons) react. Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents as well as natural sources help to for ground level ozone.
- Nitrogen comprises 80% of the atmosphere. When combustion temperatures become high, nitrogen is more likely to combine with atmospheric oxygen to create NO or NO_2, and both are considered important contributors to air pollution. While there is not a lot of evidence to show that nitrogen oxides are directly responsible for adverse health outcomes, they often combine to create Ozone, a gas that is very harmful.
- The largest source of carbon monoxide is from vehicle emissions. Carbon monoxide can be especially dangerous to humans because of the affinity hemoglobin has for it over oxygen. Once inside the body, hemoglobin bonds to CO instead of O_2, greatly reducing a person's oxygen carrying capacity.

- Sulfur Dioxide (SO_2) is generally formed from the burning of fossil fuels. Sulfur Dioxide can readily form Sulfur Trioxide (SO_3) once it contacts atmospheric oxygen, which can lead to acid rain.

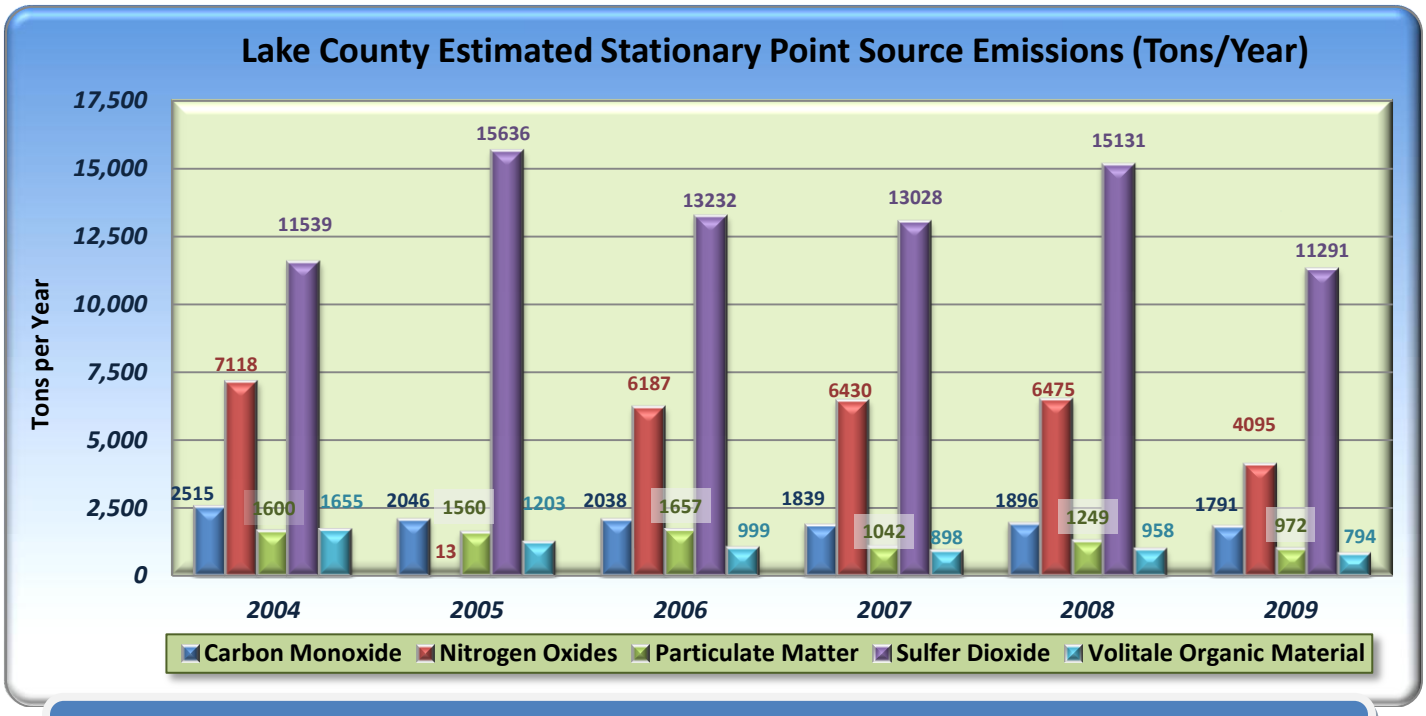


Figure 5.4 Lake County Estimated Stationary Point Source Emissions (Tons/Year), 2005-2009
Source: Illinois Annual Air Quality Report (2005-2009).

FOOD QUALITY

Foodborne Illnesses

There are over 3,100 permitted food facilities in Lake County that get inspected anywhere from 1-3 times routinely per year as a form of primary prevention. Since 2007, over 25,000 routine inspections have been conducted across the whole county. Inspectors spend up to several hours each inspection reviewing food handling practices, handwashing, food temperatures and food storage procedures among other things. This primary prevention has culminated with a targeted effort among staff to reduce the number of critical violations related to temperatures, handwashing and cross contamination found at facilities. The effort has staff concentrating on the critical violations that have a potential direct link to causing a foodborne illness. Because of this focus, there has been over a 50% increase in the amount of these types of violations recorded (Table 5.5). Once per year at all the medium and high risk food facilities, the staff does an educational presentation focused on reducing the factors that cause foodborne illnesses. This mandatory session is taught by staff at the facility and includes management, kitchen staff and wait staff. Since 2007, there has been a 7% increase in the number of educational sessions taught (Table 5.5).

Table 5.5 Routine Food Facility Inspections (2007-2010)

Year	Routine Inspections	Critical Violations	Educational Inspections
2007	6,292	1,768	2,174
2008	6,347	1,818	2,169
2009	6,433	1,953	2,199
2010	6,414	2,715	2,337

Source: LCHD, Food Program (2011).

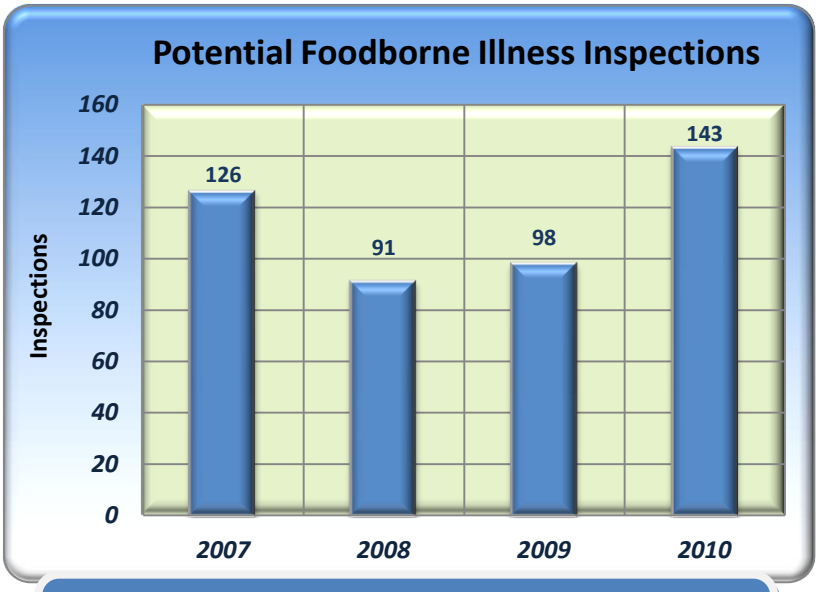


Figure 5.5 Potential Foodborne Illness Inspections
Source: LCHD, Food Program (2011).

The Food Program also uses surveillance to mitigate potential foodborne illness outbreaks in the two ways. First, the department can receive direct calls from the public who say they have a foodborne illness. The caller is interviewed with a standard form in an attempt to find out as much information as possible about the potential source of the illness. The second surveillance technique is through the mandatory reporting of diseases by local healthcare providers. Most foodborne illnesses are reportable diseases that must be reported to the Lake County Health Department. Some examples are Botulism, Enteric E. coli Infections and, Salmonellosis. When the Health Department receives word of a potential or confirmed foodborne illness, they respond immediately with a site visit to the suspected facility (Figure 5.4). Confirmed foodborne illness cases have been steady since 2007 (Table 5.6)

Table 5.6 Selected Foodborne Illnesses in Lake County (2007-2010)

Communicable Disease	2010		2009		2008		2007	
	#	Rate/100,000	#	Rate/100,000	#	Rate/100,000	#	Rate/100,000
E. Coli 0157:H7	2	0.28	5	0.70	2	0.28	3	0.43
Listeriosis	3	0.42	2	0.28	2	0.28	1	0.14
Salmonellosis	115	16.14	107	15.02	114	16.11	143	20.36

Source: IDPH and LCHD/CHC CD Data, Cases are recorded from December through November (2007-2010).

OTHER ENVIRONMENTAL CONSIDERATIONS

Landfill Monitoring

Twenty two closed landfills, located in various communities within the county, are inspected annually to assess the integrity of the cap and vegetation. The landfills are old sites that, in general, have covers consisting of two feet of clay, six inches of topsoil and vegetation. Signs of distressed vegetation can indicate migration of gas is occurring through the cover materials. Liquids from the landfill can also seep through the cover and side slopes, especially if erosion is occurring. A release of gas and liquid from a landfill has the potential to impact public health and the environment. Gas migration can also cause off site odors. If problems are found, the responsible parties are notified of the inspection results and the corrective action steps that need to be taken. Five notifications were sent in 2011. The closed sites are also monitored for illegal dumping, especially for abandoned tires that can become mosquito breeding sites with implication for nearby residents due to West Niles Virus. There were no significant amounts of illegally dumped materials found in 2011.

Blood Lead Levels in Children

High blood lead levels are among the most prevalent childhood conditions and the most prevalent environmental threat to the health of children in the United States. Childhood lead poisoning is totally preventable. Decreased levels of lead in gasoline, air, food and releases from industrial sources have resulted in lower mean blood lead levels. However, lead in paint, dust, and soil in inner city urban areas has been reduced only to a limited extent. Lead in the home environment is the major remaining source of human lead exposure in the United States.

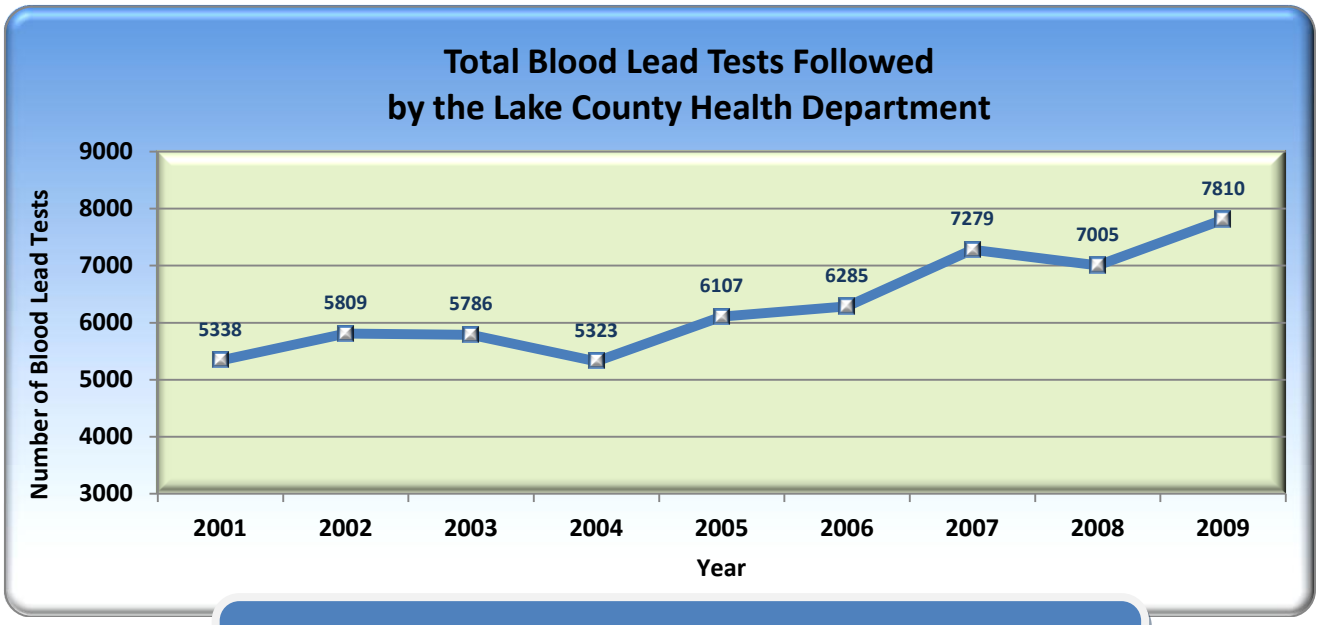


Figure 5.6 Total Blood Lead Tests Followed by the Lake County Health Department (2001-2009)
Source: Illinois State Laboratory (2011).

Since 1990 over 6,000 new health studies have been conducted. These studies have shown that children are the most susceptible to the damaging effects of lead because they are more likely to ingest lead due to hand-to-mouth activity and early body development. Lead exposure has been found to interfere with the developing nervous system including the brain. This can potentially lead to IQ loss, poor academic achievement, permanent learning disabilities, and behavioral problems. These effects can persist into adulthood.

Table 5.7 Blood Lead Level Ranges (2001-2009)

Year	Range of Blood Lead Level (g/dL)						
	10-14	*15-19*	*20-29*	*30-44*	*45-69*	*70+*	*Total*
2001	124	52	68	17	0	1	262
2002	152	55	59	15	2	1	284
2003	97	50	24	6	0	0	177
2004	67	33	21	5	0	0	126
2005	85	34	21	2	1	0	143
2006	62	18	10	2	1	1	94
2007	50	20	15	0	0	0	85
2008	48	11	15	8	0	0	82
2009	21	25	8	2	3	0	59

Source: Illinois State Laboratory (2011).

Children 6 months to 6 years old enrolled in a licensed or public school operated day care, pre-school, nursery school, and/or kindergarten are administered a Lead Risk Questionnaire as part of the Child Health Exam (CHE). Children enrolled in Medicaid, Head Start, All Kids or WIC are also tested. Children with siblings with elevated blood lead levels are tested, as are children identified as potential high risk through the answers to the questionnaire.

Elevated blood lead levels are reported from the Illinois State Laboratory to the Lake County Health Department. Those children's parents are contacted, and their follow up care is tracked. The lead control initiatives are conducted jointly by Family Case Manager Nurses and Environmental Health Specialists. Nurses educate parents on ways to eliminate exposure to sources of lead. The environmental specialists focus on remediation of lead sources in the home and the child's environment. This year the week of October 23, 2011 is Childhood Lead Poisoning Prevention Week. During this week there is particular focus on using all nurse home visits and clinic encounters as an opportunity to remind parents about potential sources of exposure to lead and steps they can take to minimize exposure.

In nine years the number of blood lead level tests conducted on children increased from 5338 to 7810. During this same period the number of children with elevated blood lead levels has declined steadily from 262 in 2001 to 59 in 2009. Children with elevated blood lead levels are more likely to be just over the threshold for referral and not exhibiting the high levels detected in earlier years. This indicator reports the number of children tested with blood lead levels exceeding 10 g/dL.

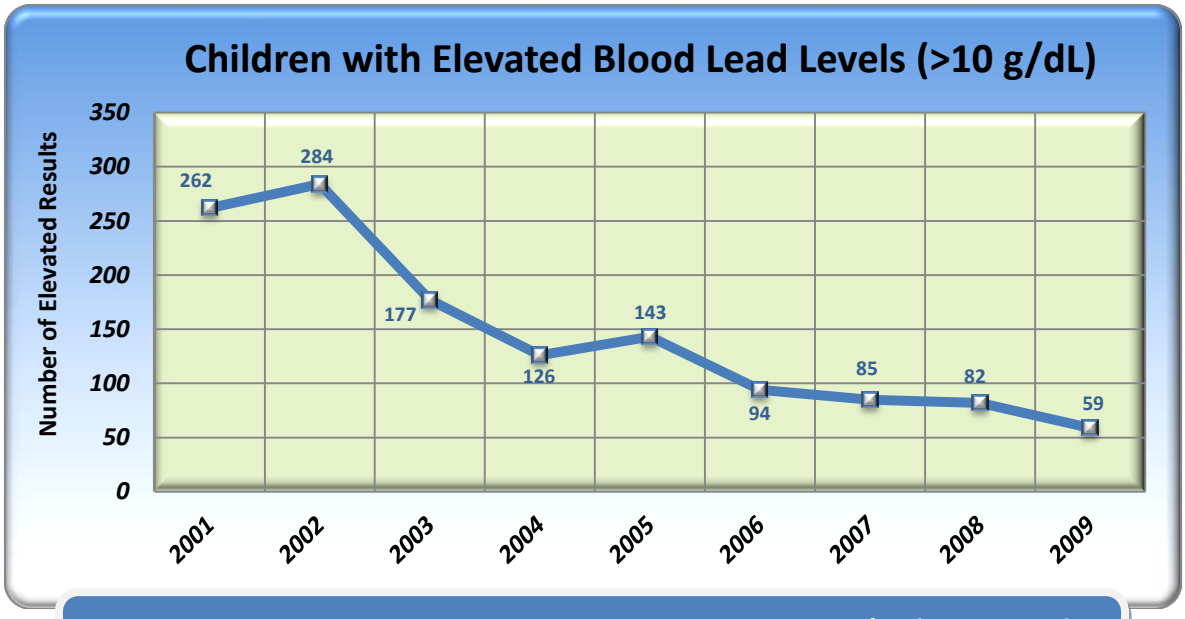


Figure 5.7 Children with Elevated Blood Lead Levels, >10 g/dL (2001-2009)
Source: Illinois State Laboratory (2011).

Rabies Prevention

Rabies is a viral infection that is mainly spread through the bite of infected animals. After a bite occurs, the onset of the disease can be prevented through a series of vaccinations. To prevent humans from contracting rabies, the Lake County Health Department has two programs with this focus. The first program actively prevents the contraction and spread of rabies through vaccinations of cats and dogs. The Lake County Health Department Animal Care and Control Division sets up many vaccination clinics throughout the year all over the county in order to vaccinate as many animals as possible. In addition, low cost vaccinations are available to low income Lake County residents. The number pets vaccinated against rabies in 2010 has increased 22 times over the amount vaccinated in 2000 (Figure 5.7)

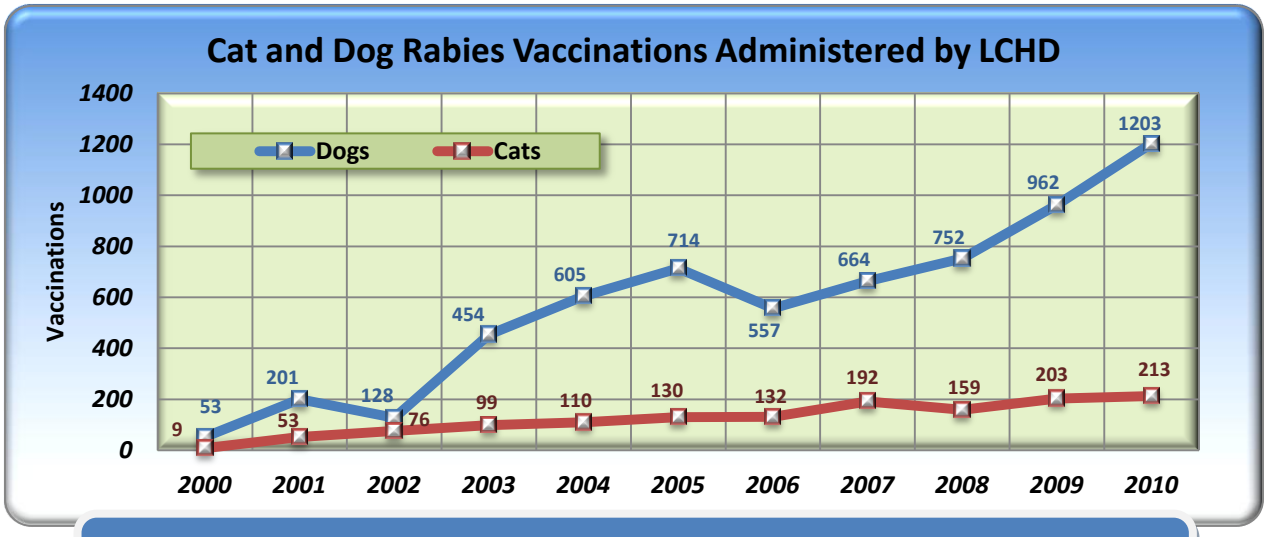


Figure 5.8 Cat and Dog Rabies Vaccinations Administered by LCHD (2000-2010)
Source: LCHD, Animal Care and Control (2011).

Due to the efforts of local pet vaccination clinics and increased education for response to animal bites, the majority of human cases of rabies in the United States have resulted from exposure to bats. In attempts to stop the human contraction of rabies, the Animal Care and Control Division also tests bats for rabies. Because the rabies virus attacks the brain causing encephalitis, the bat must be captured and killed in order to be tested. Despite the number of bats being tested increasing, the percentage of positive bat submittals has hovered around 5% for the last 6 years (Table 5.8). Because some areas of the county have more bat activity than others, Animal Care and Control is also cognizant of the location of the captured bats. More bats positive for rabies have been found in the northern part of the county than the southern part of the county (Map 5.2). This is most likely due to the fact that northern Lake County has more lakes and rivers and is more rural, while southern Lake County is more suburban.

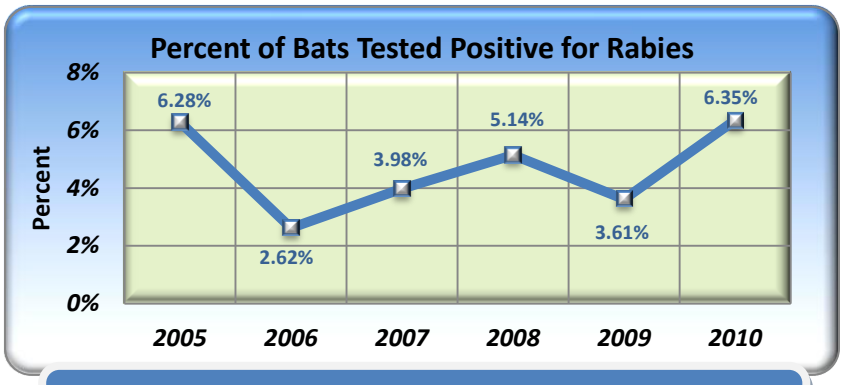
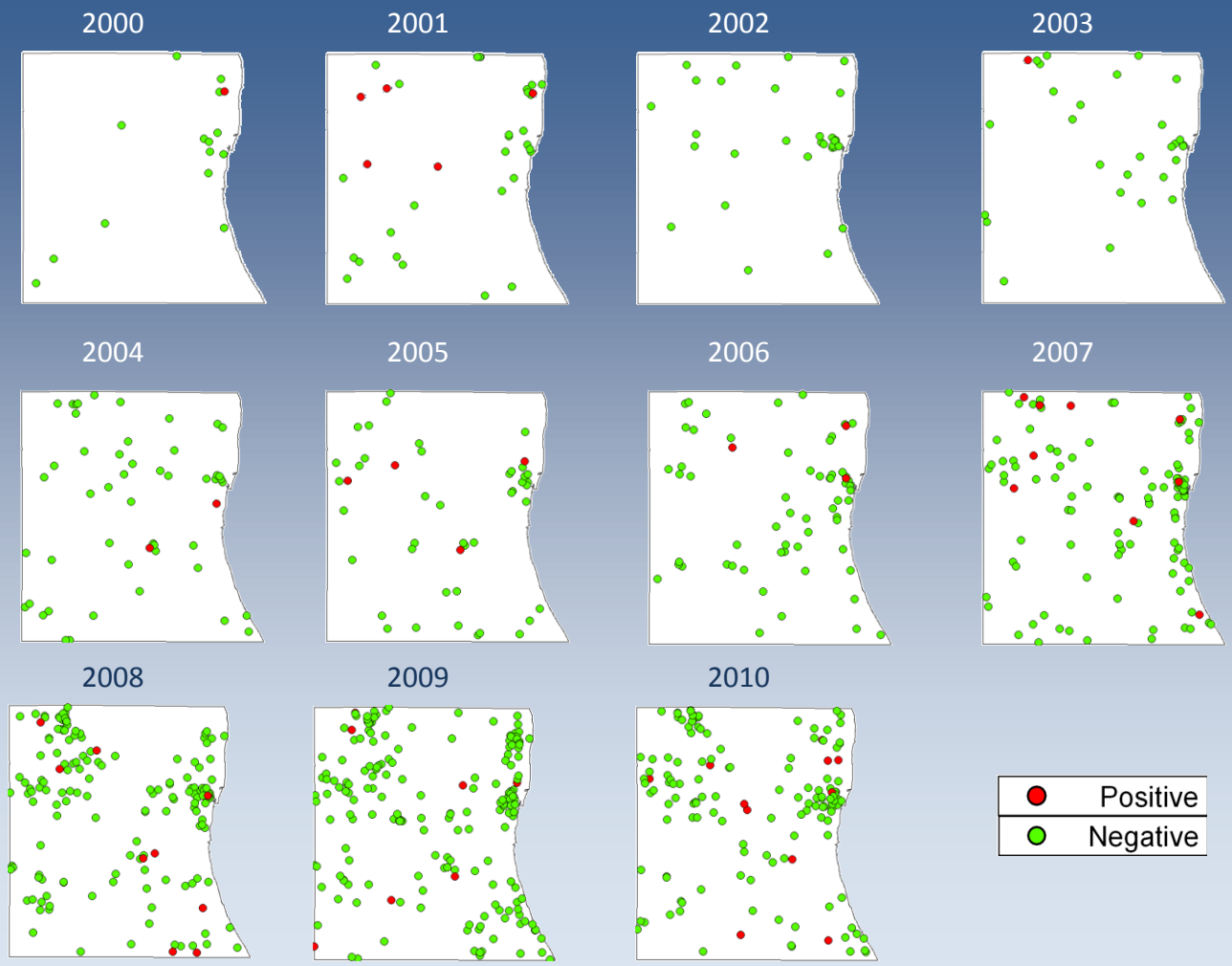


Figure 5.9 Percent of Bats Tested Positive for Rabies
Source: LCHD, Animal Care and Control (2011).

Map 5.2 Location of Bat Rabies Submittals in Lake County



Source: LCHD, Animal Care and Control (2011).

West Nile Virus Prevention

West Nile Virus (WNV) was first discovered in the U.S. in New York in 1999. September 2001 marked the first time the virus was identified in Illinois. In 2002, the first human cases of WNV infection in Lake County were confirmed. Since then, there have been a total of 36 human cases in the county with two confirmed deaths. The Health Department and Community Health Center continues to work with the Illinois Department of Public Health and other agencies to prevent and minimize this infection in humans (Table 5.7).

The Lake County Health Department actively conducts a multi-faceted mosquito surveillance program in Lake County (Table 5.8). Beginning in late-spring and continuing into the autumn, a series of traps are set around the county, including within the Lake County Forest Preserves. At each site a pool, or batch, of mosquitoes is tested weekly for West Nile virus. Areas of stagnant water are also investigated throughout the season for the presence of mosquito larvae, specifically from the Culex mosquito which is the primary carrier of West Nile in Illinois. Finally, the locations of dead birds are monitored to assist in the assessment of potential West Nile virus activity (Table 5.8). The Health Department works closely with the municipalities, townships, and the Lake County Forest Preserve District in monitoring the mosquitoes that may pose a public health threat.

Table 5.8 Human Cases of West Nile Virus						
Year	United States		Illinois		Lake County	
	Cases	*Deaths*	*Cases*	*Deaths*	*Cases*	*Deaths*
1999-2001	149	18	0	0	0	0
2002	4,156	284	884	67	8	1
2003	9,862	264	54	1	1	0
2004	2,470	88	60	4	0	0
2005	2,949	116	252	12	11	1
2006	4,180	149	211	9	11	0
2007	3,630	124	101	4	4	0
2008	3,513	43	20	0	0	0
2009	720	32	5	0	0	0
2010	1,021	57	61	4	1	0

Source: LCHD Lakes Management Unit, IDPH (2011).

Table 5.9 West Nile Virus Mosquito Pools and Positive Birds				
Year	Mosquitoes		Birds	
	Illinois	*Lake County*	*Illinois*	*Lake County*
2001	20	0	138	6
2002	528	39	513	12
2003	338	18	222	4
2004	1,300	95	233	5
2005	2,465	167	227	12
2006	2,980	135	161	6
2008	658	10	31	1
2009	404	1	26	0
2010	2,296	29	64	0

Source: LCHD Lakes Management Unit, IDPH (2011).

Section VI: Built Environment

Introduction

While the population of Lake County has grown by almost 200,000 residents over the last 20 years, the physical composition of its 52 municipalities has remained static. The majority of the towns and cities within the county can be labeled as suburban or rural and therefore, the majority of the residents do not live in an urban setting. Grocery stores, parks, job sites and places of worship are often miles away from residences. This means that walking and biking as transportation are limited resulting in a heavy reliance on motorized vehicles to get around. The consequence has been an increase in a sedentary lifestyle and a decrease in healthy diets. This urban sprawl, in addition to other factors, has exacerbated the outbreak of chronic diseases such as obesity (Ewing, Brownson, & Berrigan, 2006; Papas, Alberg, Ewing, Helzlsouer, Gary, & Klassen, 2007).

The term built environment refers to the manmade surroundings that impact the way we live and the activities we carry out and is comprised of "urban design, land use, and the transportation system, and encompasses patterns of human activity" (Handy, Boarnet, Ewing, & Killingsworth, 2002). In practice, the built environment is made up of the buildings, roads, parks, sidewalks, schools and other structures that form the blueprint of our communities. Often, there are problems with the way neighborhoods are constructed, with too few green areas and too many miles between structures. Because of poor planning and foresight, the built environment is often discussed with a negative connotation, thereby erroneously drawing much of the blame for the increase in chronic diseases. The Lake County Health Department recognizes the negative affects the built environment can have on an individual's ability to be physically active and obtain a healthy diet; however, when optimized, the built environment is not a hindrance to leading a healthy lifestyle, but rather a facilitator.

To show how the built environment can work for the county's residents as a positive contributor, the Lake County Health Department has been collecting data in relation to factors that make up the built environment. The intention is to aid our communities and our residents in alleviating the stresses the built environment has created, leading to healthier communities, healthier people and better health outcomes. We recognize that we have a long way to go, but presented in the following section are the initial results broken down into two main categories: physical health and mental health.

PHYSICAL HEALTH

Barriers to Physical Activity

Proper exercise is an important part of a healthy lifestyle. Research shows that there is a significant relationship between BMI, hypertension and the amount of physical activity one receives (Ewing, Schmid, Killingsworth, Zlot, & Raudenbush, 2003). The CDC recommends that children get 60 minutes of exercise each day, and adults get 2 hours 30 minutes each week (How much physical activity do you need?, 2011). In Lake County, 62.4% of residents think they get enough exercise (see Table 6.1; Illinois Behavioral Risk Factor Surveillance System, 2007-2009). There are several methods for achieving the recommended amount of physical activity. One is the walkability of one's neighborhood. A walkable neighborhood can be defined as one that has a lot of street connectivity, nice aesthetics, good land use mix diversity and access as well as safe walkways for pedestrians. There is some research that shows that residents in a highly walkable neighborhood get more physical activity and report lower obesity prevalence than residents in low walkable neighborhoods (Saelans, Sallis, Black, & Chen, 2003). By looking at neighborhoods on an individual basis, it may be possible to diagnose walkability and improve access where needed.

Table 6.1 Regular and Sustained Physical Activity Guidelines, by Gender (Lake County)

Gender	Meets or Exceeds	Does Not Meet	Inactive
Male	67.4%	26.1%	6.5%
Female	57.5%	37.3%	5.2%

Source: Illinois BRFSS: Lake County (2007-2009).

Another way to get physical activity is through the use of outdoor parks. There are over 700 parks throughout Lake County ranging from large parks that are hundreds of acres to those that only encompass a hundred square feet. In addition, there are 61 locations run by Lake County Forest Preserve scattered throughout the county that range from dog parks to wooded forests. Within the forest preserves, individuals can hike, bike, swim, canoe and ice skate; most of which are free to Lake County residents. The forest preserves account for

almost than 29,000 acres of land in the county. When combined, with the numerous parks, these green areas aggregate to 30,130 acres or 10.0% of the total area in Lake County.

Table 6.2 Percent of Population within 1 Mile to a Park in Lake County

Race/ Ethnicity	Percent Population *Within 1 mile*
White	71.5%
African-American	57.0%
Hispanic	65.5%

Source: LCHD, US Census Bureau (2010).

There are many factors that determine park use, but perhaps the most important is the proximity of a park. Many studies conclude that residential proximity to a park increases the likelihood of park attendance (Cohen, McKenzie, Sehgal, Williamson, Golinelli, & Lurie, 2007; Roux, et al., 2007). However, while walkability to a park tends to increase its use; the need to drive to a park will often deter use (McCormack, Rock, Toohey, & Hignell, 2010). Throughout the county, about 70.0% of the population lives with 1 mile of a park (Table 6.2)

Supplementary research points out that park users may be sedentary once at the park (Floyd, Spengler, Maddock, Gobster, & Suau, 2008). Available park amenities have been associated with increased physical activity (Kaczynski, Potwarka, & Saelens, 2008). A study by Potwarka, Kaczynski and Flack, 2008, concluded that there was no link between proximity of a park alone and healthy weight status among children. Yet, when they studied the correlation between children's weight status and the proximity of a park playground, there was a strong correlation. Another study showed that facilities that support park use, both structured and unstructured were important. These amenities ranged from sports fields to climbing trees. Additionally, the playground equipment should be age appropriate in order to engage children and their parents (McCormack, Rock, Toohey, & Hignell, 2010).

Weather can have a significant impact on the amount of physical activity as well. The amount of snow or the wind speed can affect the amount of steps taken in one day by as much as 20% (Chan, Ryan, & Tudor-Locke, 2006). Additionally, the physical activity obtained during leisure time is greatly increased in the summer and reduced in the winter. This seasonal variation is partially due to actual weather conditions, but has been accounted for in perceived weather as well (Chan & Ryan, 2009). It still isn't fully understood how the weather affects indoor physical activity. While there are many indoor recreational facilities in Lake County that operate all year and in all weather conditions, it is most likely that there are fewer commercial physical activity-related outlets in lower-income neighborhoods and in neighborhoods with higher proportions of African American residents, residents with Hispanic ethnicity, and residents of other racial minority backgrounds (Powell, Slater, Chaloupka, & Harper, 2006).

In addition, the safety of the park and the route to the park greatly affect the physical activity levels. A neighborhood has to be safe for its residents to get physical activity, especially if they are trying to exercise at night (Molnar, Gortmaker, Bull, & Buka, 2004). But, it does not necessarily matter if the neighborhood is actually safe. It may be enough for the neighborhood to be perceived as unsafe to negatively affect the amount physical activity received (McGinn, Evenson, Herring, Huston, & Rodriguez, 2007; Kirtland, et al., 2003). As previously stated, there is much the Lake County Health Department does not know about the access to physical activity among its residents, but the foundation has been laid.

Access to Healthy Food

A well balanced diet is important to proper physical health. When defining a well balanced diet, the USDA suggests maintaining calorie balance over time to achieve and sustain a healthy weight and focusing on consuming nutrient-dense foods and beverages. This includes eating 2-3 servings of milk, 9 servings of grain, 4 servings of vegetables and 3 servings of fruit each day (USDA, 2010). There is a lot of data that suggests eating healthier foods as part of a healthier diet decreases the prevalence of obesity. Due to various factors, there are many residents of Lake County who report they do not eat nearly enough fruits and vegetables per day (Table 6.3).

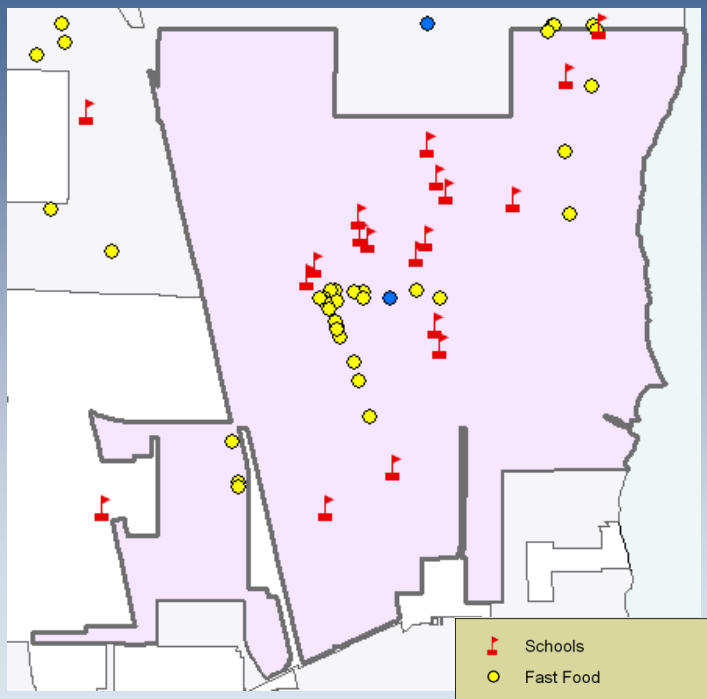
Table 6.3 Total Servings Fruits/Vegetables Per Day

Servings/Day	Count	Percent
0-2	234,598	47.1%
3-4	193,336	38.8%
5 or more	69,997	14.1%

Source: Illinois BRFSS (2007-2009).

There are over 160 facilities in Lake County that sell fresh fruits and vegetables. Despite the high number, there is often a disparity in access between several cities and neighborhoods. It is common for cities and neighborhoods whose residents are predominantly minorities to have less access to healthy food choices (Baker, Schootman, Barnidge, & Kelly, 2006; Morland & Filomena, 2007). Without the ability to choose healthy foods, the public is only left with unhealthy options, which can lead to an increase in chronic diseases such as obesity, hypertension and heat disease.

Map 6.1 Location of Fresh Fruits/Vegetables, Fast Food Restaurants, and Schools within the City of North Chicago, IL



Source: LCHD (2011).

The city of North Chicago has a 2006 population of 34,068, is 36.3% African American and 18.2% Hispanic with a median household income of $38,180 making it one of the most diverse and poverty stricken cities in Lake County (US Census Bureau, 2006) North Chicago has only 1 facility in its border that sells fresh fruits and vegetables. This city is considered a food desert, loosely defined as a "socially distressed neighborhood with relatively low average household incomes and poor access to healthy food" (Larse & Filliland, 2008). The residents of this city may have to travel several miles to obtain fresh fruits and vegetables which is a significant barrier to making healthy food choices.

An alternative to buying healthy food in grocery stores that is available to residents of Lake County is to participate in a community garden. This is a local garden that can be used to grow fruit and vegetables and is managed by members of the community. There are 10 community gardens throughout Lake County. While small in size, they do offer an option for residents who are concerned about the cost of healthy food or the availability of fresh produce. Community gardens can also increase the amount of physical activity (Twiss, Dickinson, Duma, Kleinman, Paulsen, & Rilveria, 2003).

While not having access to healthy food options is a serious barrier to eating a healthy diet, increased access does not guarantee the healthy option will be chosen. Whole grains and fresh fruits and vegetables tend to cost more money than their less healthy alternatives. There is research that shows that the higher price of healthy foods prevents their purchase (Cassady, Jetter, & Culp, 2007; Drewnowski & Darmon, 2005). There are 207 facilities in Lake County that accept SNAP (Supplemental Nutrition Assistance Program), Link or WIC (Women, Infants and Children), all governmental programs set up to supplement or offset food purchasing costs. However, 45% of the facilities that accept the supplemental programs are also considered to be fast food facilities.

However, it is not enough to solely increase access to healthy food options. The public must also stay away from foods that are dense in fat from fast food outlets. Eating at fast food restaurants is positively associated with having a high BMI and is negatively associated with eating vegetables or getting physical activity (Jeffery, Baxter, McGuire, & Linde, 2006). In addition, the proximity of one's home to fast food restaurants is correlated with a rise in obesity rates (Cummins & Macintyre, 2005). The Lake County Health Department has defined a fast food facility as one where the customer orders food from a counter, not from a server. In Lake County, there are about 1985 fast food facilities accounting for over 63% of the total permitted facilities.

The rates of obesity are rising in children. One part of the built environment that helps this is the proximity of schools to fast food restaurants. 31% of all schools in Lake County are located within ¼ mile of a fast food facility. As an example, 6 of the 13 schools in North Chicago are within ¼ mile of a fast food facility, however only 3 of those schools are within ¼ mile of a park. This disparity is not seen across the county (Table 6.4). The high concentration of fast food options around schools is exposing children to poor quality food environments and is not giving them to option to make healthy choices (Austin, Melly, Sanchez, Patel, Buka, & Gortmaker, 2005). In addition, the children in Lake County and North Chicago do not have easy walking access to fresh fruits and vegetables from their schools.

Table 6.4 Percent of Schools within 1/4 Mile of Location

	Lake County	North Chicago
Fast Food	49.4%	50.0%
Fruits and Vegetables	13.7%	0.0%
Local Park	38.1%	16.7%

Source: LCHD, Food Program (2011).

MENTAL HEALTH

Table 6.5 Days of Not Good Mental Health in Past Month

Days	Count	Percent
None	310,215	61.9%
1-7	130,135	26.0%
8-30	60,607	12.1%

Source: Illinois BRFSS (2007-2009).

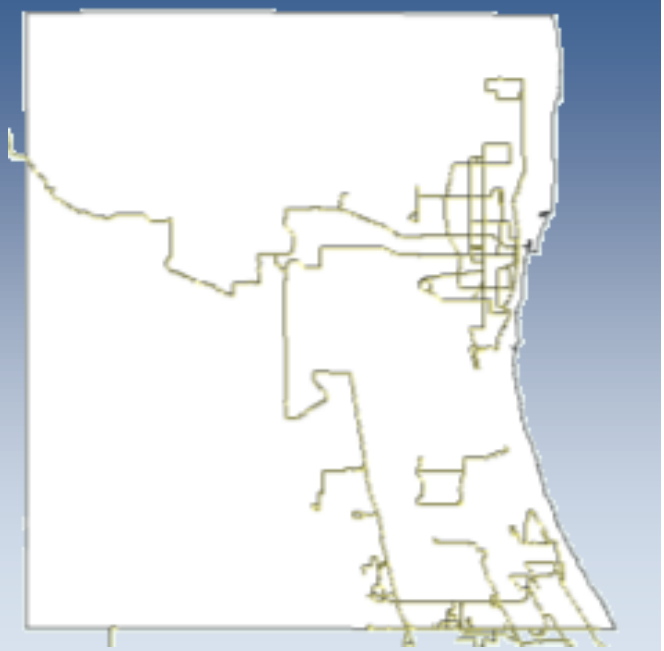
In Lake County, 38% of residents state that they have had one or more days of not good mental health (Table 6.5). This may be due to a number of factors ranging from job or family stress to money issues. However, there are many aspects of the built environment that can affect mental health, not just physical health and these factors range across the entire spectrum of what is considered the built environment.

General mental well-being has been shown to be affected by several built environment factors. Some factors, such as too much noise from roads or construction or too little open or green space, are objective. These tangible factors can increase psychological distress, but do not cause mental illness (Evans, 2003). Other factors are neighborhood perspectives that may differ between individuals. These can be feeling over-crowded in a home or feeling unsafe to go out during the day (Guite, Clark, & Ackrill, 2006). Because several of the factors are subjective, properly designing neighborhoods or fixing this problem can be very difficult. However, these poor environmental conditions do tend to concentrate among the poor and ethnic minorities (Evans, 2003).

Clinical depression is a mood disorder that can be a combination of prolonged feelings of sadness, loss, anger or frustration. There are many known causes of depression ranging from genetics to drug use to life events. Vandalism, graffiti, litter, crime and private gardens are built environment stressors that have been shown to have a direct relation to depression (Weich, Blanchard, Prince, Burton, Erens, & Sproston, 2002; Galea, Ahern, Nandi, Tracy, Beard, & Vlahov, 2007). Most of these are seen in an urban setting, not so much in rural or suburban areas.

While illicit drug use and abuse is certainly not limited to an urban issue, there are many parts of the urban built environment that can exacerbate it. The availability of vacant housing and the amount of vandalism and litter have been directly associated with the prevalence of drug use in a community. As an unintended consequence, higher drug use is also found in areas where there is better public transportation (Map 6.2). This is possibly due to a network connection between drug users in previously isolated neighborhoods (Galea, Rudenstine, & Vlahov, 2005). Overdose deaths are more common in neighborhoods with greater environmental disorder as measured by the percent of acceptably clean sidewalks and the percent of dilapidated housing units. These signs may reflect a decline in neighborhood social control and collective efficacy which can lead to more drug use and ultimately, more drug overdoses (Nandi, Galea, Ahern, Bucciarelli, Vlahov, & Tardiff, 2006).

Map 6.2 Public Bus Routes in Lake County



Source: PACE Bus (2010).

Section VII: Community Safety

What is Community Safety?

Community safety is considered by some to be defined as the freedom from crime and violence as well as freedom from the fear of crime and violence. Other definitions include safety from accidents, or unintentional injuries (which we included in Section II). And as we just discussed in the previous two sections of this report (Section V – Environmental Health and Section VI – Built Environment), the quality of life within a community is impacted by many different facets of the infrastructure of the community. These various perspectives of understanding of community safety see it as a subset of "health and wellbeing" issues, which are integral to a liveable community, and connected to broader social, environmental, and economic sustainability.

How Do You Achieve Community Safety?

Although there may be varying perspectives regarding the definition of community safety, there appears to be a shared understanding of the mechanisms for promoting community safety. The World Health Organization (WHO) Collaborating Center on Community Safety has six "indicators for safe communities"*:

1. "An infrastructure based on partnerships and collaborations, governed by a cross-sectoral group that is responsible for safety promotion in their community;
2. Long-term, sustainable programs covering both genders and all ages, environments, and situations;
3. Programs that target high-risk groups and environments, and programs that promote safety for vulnerable groups;
4. Programs that document the frequency and causes of injuries;
5. Evaluation measures to assess their programs, processes, and effects for change;
6. Ongoing participation in national and international Safe Communities Networks"

* World Health Organization (2002)

MEASURES OF COMMUNITY SAFETY

Law Enforcement and Crime Statistics

Table 7.1 Law Enforcement Employees in Lake County and Illinois (2009)

	Lake County			Illinois		
Employee Status	***Female***	***Male***	***Total***	***Female***	***Male***	***Total***
Sworn Full-Time	111	1,089	1,200	5,379	28,645	34,024
Civilian Full-Time	315	336	651	6,849	6,453	13,302
Sworn Part-Time	13	145	158	187	3,323	3,510
Auxiliary Officers	6	43	49	187	1,733	1,920
TOTAL*	**445**	**1,613**	**2,058**	**12,602**	**40,154**	**52,756**

Source: Uniform Crime Reports (UCR), US Dept of Justice Federal Bureau of Investigation (2009); * Police Departments, Sheriff's Office, Colleges/Universities only. Illinois state data includes Secretary of State.

Table 7.2 Lake County Crime Index Offenses/Crime Rate Comparison (2008-2009)

Type of Offense	2008 Actual	2009 Actual	Actual % Change	2008 Rate*	2009 Rate*	Rate % Change
Total Crime Index Offenses	15,139	15,390	+ 1.7%	2,131.5	2,160.1	- 1.3%
Murder	10	9	- 10.0%	1.4	1.3	- 7.1%
Criminal Sexual Assault	208	173	- 16.8%	29.3	24.3	- 17.1%
Robbery	288	318	+ 10.4%	40.5	44.6	+ 10.1%
Aggravated Assault/Battery	804	954	+ 18.7%	113.2	133.9	+ 18.3%
Burglary	2,439	2,373	- 2.7%	343.4	333.1	- 3.0%
Theft	10,877	11,099	+ 2.0%	1,531.5	1,557.9	+ 1.7%
Motor Vehicle Theft	459	395	- 13.9%	64.6	55.4	- 14.2%
Arson	54	69	+ 27.8%	7.6	9.7	+ 27.6%

Source: Uniform Crime Reports (UCR), US Dept of Justice Federal Bureau of Investigation (2009); *Rates per 100,000.

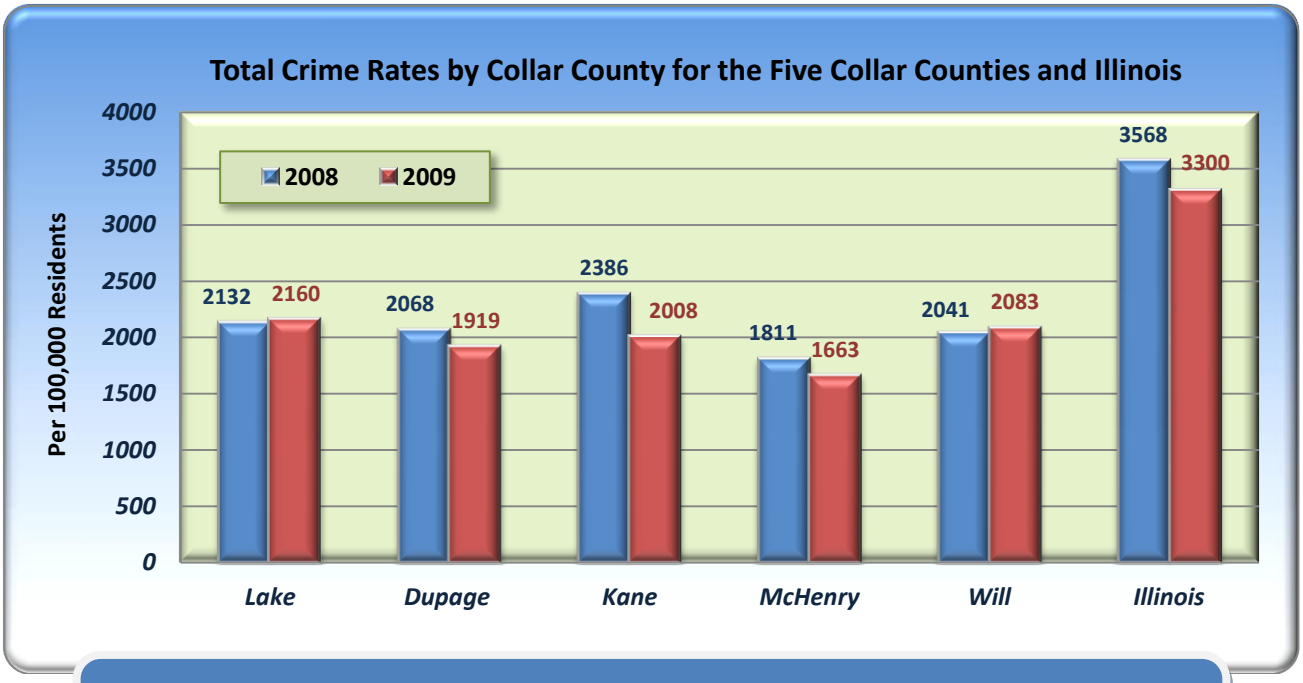
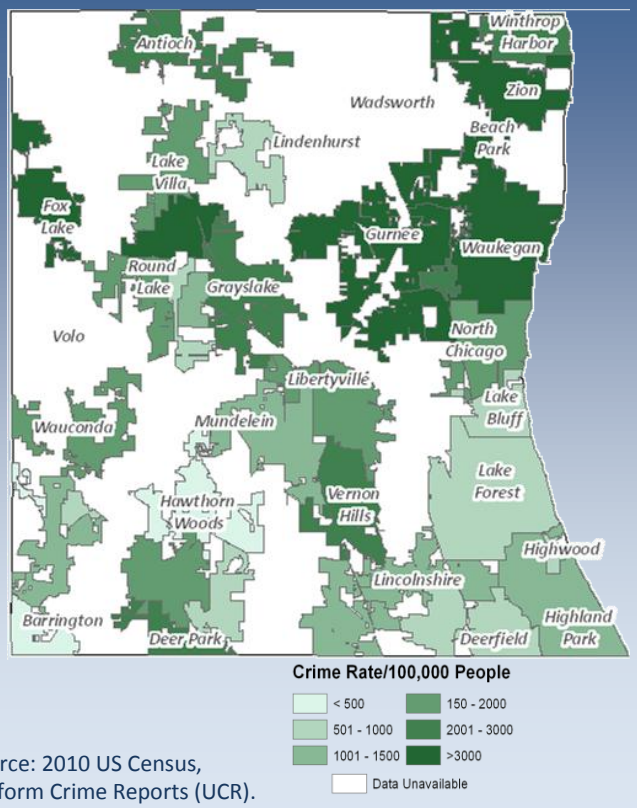


Figure 7.1 Total Crime Rates by Collar County for the Five Collar Counties and Illinois (2008-2009)

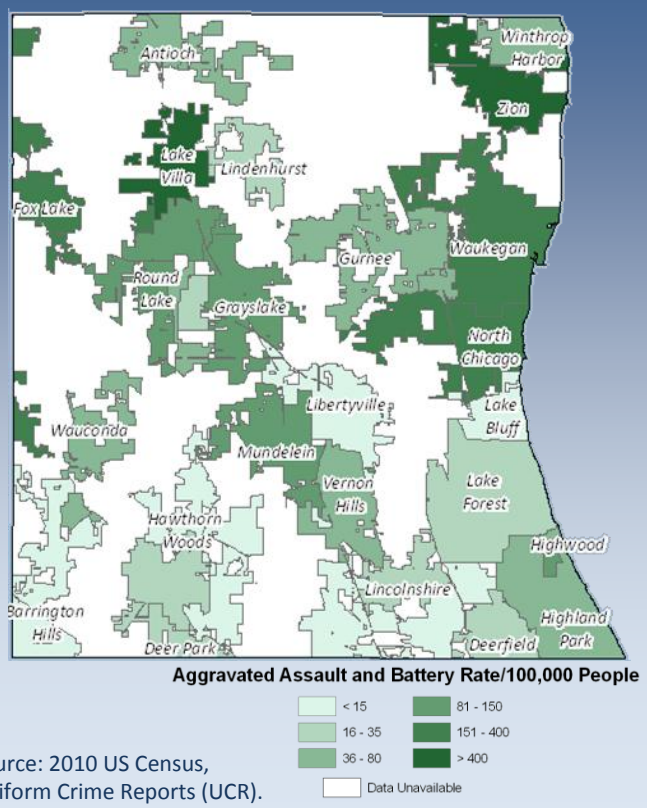
Source: Uniform Crime Reports (UCR), US Dept of Justice Federal Bureau of Investigation (2008-2009).

Map 7.1 Total Crime Rate per 100,000 People in Lake County (2009)



Source: 2010 US Census, Uniform Crime Reports (UCR).

Map 7.2 Aggravated Assault and Battery Rate per 100,000 People in Lake County (2009)



Source: 2010 US Census, Uniform Crime Reports (UCR).

Adult Probation

"There are an increasing number of adults in the United States under some sort of correctional supervision. In 2005, over 7 million people were under some form of correctional supervision including those incarcerated in jails and prisons, as well as those on parole and probation supervision (Bureau of Justice Statistics, 2007). Over the past several decades, there has been increased focus on community-based offender rehabilitation in an effort to curb prison overcrowding and increase the number of treatment options available to offenders in their communities-of origin. This emphasis has created rising demands on local probation departments and the development of numerous rehabilitative programs, many of which are of questionable quality.

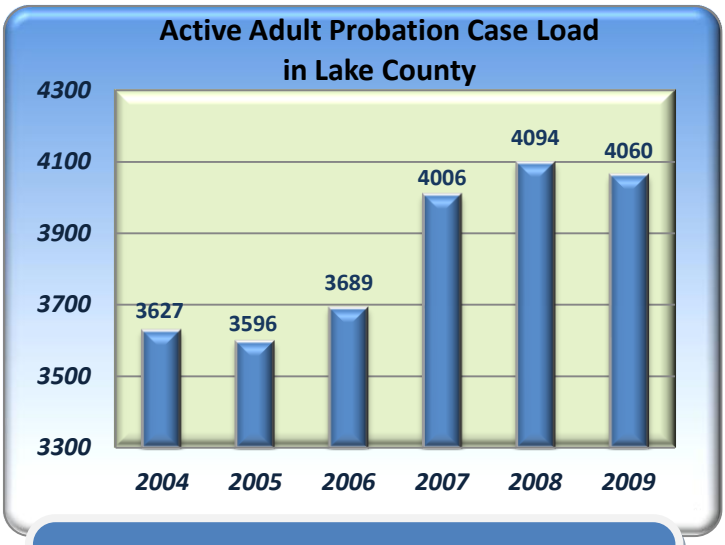


Figure 7.2 Active Adult Probation Case Load in Lake County (2004-2009)
Source: 19th Circuit Court of Illinois.

Nationwide, recidivism rates for offenders on probation supervision have ranged between 30-60% (Beck & Shipley, 1989). The Illinois Criminal Justice Information Authority (Adams, Olson & Adkins, 2002) indicated that while on supervision 30% of Illinois probationers were arrested for another crime, almost 40% had at least one technical violation, and probation was revoked for approximately 15% of probationers. An outcome evaluation of Lake County Adult Probation during that same period (Kuzmickus, 2000) revealed similar outcomes for all cases assigned to probation, though High-Risk cases (based on the Illinois Adult Investigation & Supervision Classification System; AOIC, 1996) generally performed poorer than cases classified as Low- or Medium-Risk."[1]

[1]Excerpt taken directly from: Verborg, R. (2008). *Preliminary Findings of the Lake County Adult Probation Department's Cognitive Outreach Groups (COG) Program.* Waukegan: 19th Circuit Court of Illinois.

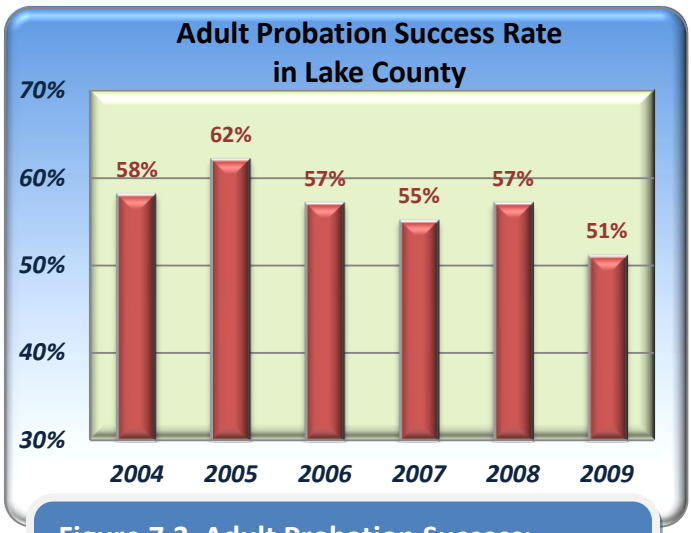


Figure 7.3 Adult Probation Success: Lake County (2004-2009)
Source: 19th Circuit Court of Illinois.

The purpose of adult probation is to provide protection to the community, while supervising offenders placed on county probation. The main goal is to produce law-abiding citizens within the community. In Lake County, when an offender is placed on probation, adult probation officers are responsible for referring these individuals to agencies, which provide the services necessary to address the problems relating to their criminality.[2] Since 2004, the number of active adult probation cases in Lake County has increased, although it appears to have leveled off at around 4,000 cases (Figure 7.2). In that same time period, the success rate of those in the adult probation program has declined (Figure 7.3). Success can be defined as an individual who completes the program as assigned with no second arrest during the parole period.

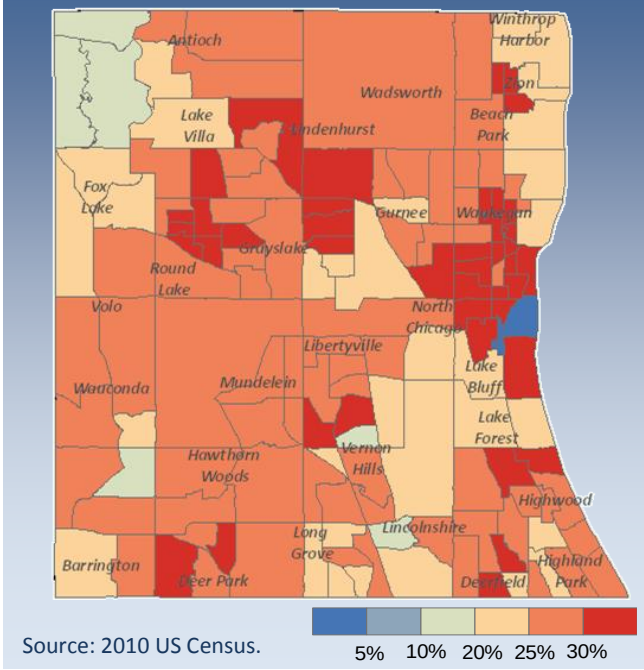
[2]Division of Adult Probation Services, 19th Circuit Court of Illinois

Juvenile Crimes

Juveniles (under 18) account for 27.4% of the Lake County Population. This is a significant portion of the population. In order to have kids who do not commit crimes, intervention can be required at an early age. There are many theories that try to link juvenile violence to any number of predictors. One is exposure to violence at an early age can be correlated with violent activity in youth. Another factor can be youth delinquency leading to serious and violent crimes. There are even some theories that link environmental exposures, such as lead, to juvenile delinquency and crime. In Lake County juvenile offenders are treated differently than adult offenders. The current philosophy of the juvenile justice system has 3 essential elements:

1. Community protection from the juvenile offender's delinquent behavior,
2. Accountability for the damage or harm resulting from the delinquent behavior, and
3. Competency development so that juvenile offenders learn new skills and behaviors in order to avoid further delinquent behavior.

Map 7.3 Percent of Lake County Population under 18



Source: 2010 US Census.

Each year, the Lake County juvenile justice system sees over a thousand cases ranging from delinquency to theft. The number of treatment programs ordered saw a severe decline in 2008-2009 (Figure 7.4). This could be related to a 25% decline in the number of cases seen since 2002. The lower number of new cases can, in part, be attributed to the decline in referrals to the justice system.

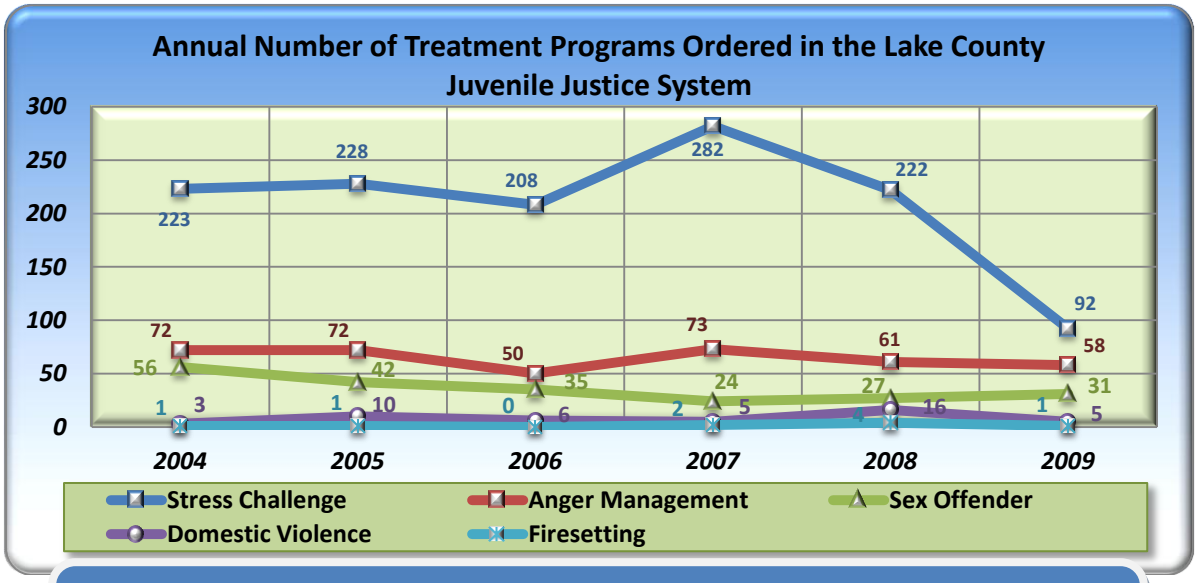


Figure 7.4 Annual Number of Treatment Programs Ordered in the Lake County Juvenile Justice System (2004-2009)
Source: 19th Circuit Court of Illinois.

Emergency Response

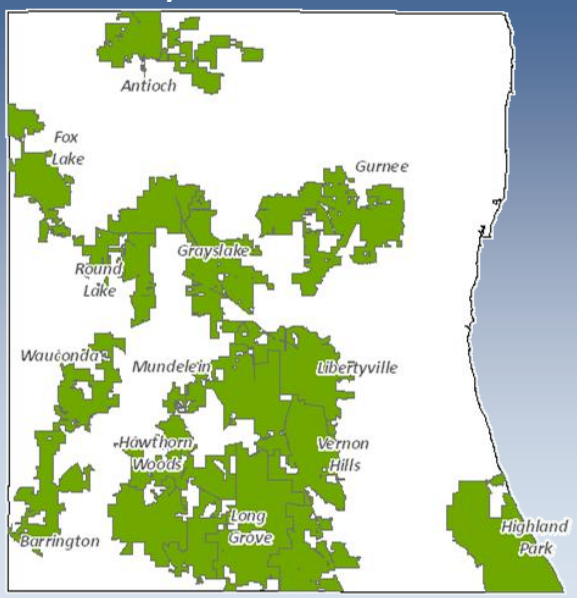
When natural disasters strike or when biochemical events put the community at risk, it takes a coordinated effort to assure the safety of the public. Through public and private entities, combined with governmental efforts, organizations throughout the county plan, mitigate and respond to emergencies. Lake County's Emergency Management Agency (LCEMA) is prepared to be called on for all types of emergencies from train derailments to hazardous material spills. Utilizing specific training, such as a HAZMAT team, the LCEMA coordinates primary response for everything non medical related in Lake County. In the case of a natural disaster, such as flooding or a tornado strike, a mass evacuation could be conducted with shelter sites to keep the public safe. When Lake County experiences its extreme weather seasons the LCEMA will put out alerts and educational information to keep the public up to date on the current conditions.

When the type of disaster requires a specific expertise, appropriate county organizations would be called upon to aid in mitigation and restoration. In the case of a medical related emergency, such as a bio-weapon attack or a pandemic outbreak, Lake County Health Department's Emergency Management Agency (LCHDEMA) would play the primary role in response. In 2009, the H1N1 flu pandemic hit Lake County (See section 9, Infectious Diseases for more information on H1N1). LCHDEMA was responsible for setting up nearly 15 mass vaccination clinics and vaccinating over 27,000 residents.

The notifications sent out by LCEMA are meant to keep the public informed during a disaster; however, preparedness starts with the individual. "Following a major disaster, first responders who provide fire and medical services will not be able to meet the demand for these services. Factors as number of victims, communication failures, and road blockages will prevent people from accessing emergency services they have come to expect at a moment's notice through 911. People will have to rely on each other for help in order to meet their immediate life saving and life sustaining needs".* A Community Emergency Response Teams (CERT) are a group of organized community members who have specific talents and training who promise to be available during a response to an emergency (see Map 7.4).

*http://www.citizencorps.gov.

Map 7.4 Communities with CERT Teams in Lake County



Source: LCHD EMA (2011).

Section VIII: Behavioral Health

Definition of Behavioral Health

Behavioral Health is being defined in this report as encompassing mental health, mental illness, substance abuse, and substance use disorders. With this being said, it is acknowledged that for this report there is more data available related to mental health/illness than substance abuse/use. It should also be noted introductorily that mental illness and substance abuse often coexist and can have a causative relation.

Introduction: A National Perspective of Mental Health and Mental Illness

In the US today, mental illness is the second leading cause of disability and premature mortality. Mental disorders collectively account for more than 15 percent of the overall burden of disease from *all* causes and slightly more than the burden associated with all forms of cancer. These data underscore the importance and urgency of treating and preventing mental disorders and of promoting mental health in our society.

It is important to note that "mental health" and "mental illness" may be thought of as points on a continuum. *Mental health* refers to the successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with adversity. *Mental illness* refers collectively to all diagnosable mental disorders. Mental disorders are health conditions that are characterized by alterations in thinking, mood, or behavior (or some combination thereof) associated with distress and/or impaired functioning. Alzheimer's disease exemplifies a mental disorder largely marked by alterations in thinking (especially forgetting). Depression exemplifies a mental disorder largely marked by alterations in mood. Attention-deficit/hyperactivity disorder exemplifies a mental disorder largely marked by alterations in behavior (over activity) and/or thinking (inability to concentrate). Alterations in thinking, mood, or behavior spawn a host of problems— patient distress, impaired functioning, or heightened risk of death, pain, disability, or loss of freedom.

The term "mental health problems" refers to signs and symptoms of insufficient intensity or duration to meet the criteria for any mental disorder. Almost everyone has experienced mental health problems in which the distress one feels matches some of the signs and symptoms of mental disorders. Mental health problems may warrant active efforts in health promotion, prevention, and treatment. Bereavement symptoms in older adults offer a case in point. Bereavement symptoms of less than 2 months' duration do not qualify as a mental disorder, according to professional manuals for diagnosis. Nevertheless bereavement symptoms can be debilitating if they are left unattended. They place older people at risk for depression, which, in turn, is linked to death from suicide, heart attack, or other causes. Early intervention is needed to address a mental health problem before it becomes a disorder.

Even today, everyday language encourages a misperception that mental health or mental illness is unrelated to physical health or physical illness. In fact, the two are inseparable. In keeping with modern scientific thinking, this report uses mind to refer to all mental functions related to thinking, mood, and purposive behavior. The mind is generally seen as deriving from activities within the brain. Research reviewed for this report makes it clear that mental functions are carried out by a particular organ, the brain. Indeed, new and emerging technologies are making it increasingly possible for researchers to demonstrate the extent to which mental disorders and their treatment—both with medication and with psychotherapy—are reflected in physical changes in the brain.

The past 25 years have been marked by several discrete, defining trends in the mental health field, including:

- The extraordinary pace and productivity of scientific research on the brain and behavior;
- The introduction of a range of effective treatments for most mental disorders;
- A dramatic transformation of our society's approaches to the organization and financing of mental health care; and
- The emergence of powerful consumer and family movements.

Another of the defining trends has been the transformation of the mental illness treatment and mental health services landscapes, including increased reliance on primary health care and other human service providers. Today, the U.S. mental health system is multifaceted and complex, comprising the public and private sectors, general health and specialty mental health providers, and social services, housing, criminal justice, and educational agencies. These agencies do not always function in a coordinated manner. Its configuration reflects necessary responses to a broad array of factors including reform movements, financial incentives based on who pays for what kind of services, and advances in care and treatment technology. Although the hybrid system that exists today serves diverse functions well for many people, individuals with the most complex needs and the fewest financial resources often find the system fragmented and difficult to use. A challenge for the Nation in the near-term future is to speed the transfer of new evidence-based treatments and prevention interventions into diverse service delivery settings and systems, while ensuring greater coordination among these settings and systems.

The emergence of vital consumer and family movements promises to shape the direction and complexion of mental health programs for many years to come. Although divergent in their historical origins and philosophy, organizations representing consumers and family members have promoted important, often overlapping goals and have invigorated the fields of research as well as treatment and service delivery design. Among the principal goals shared by much of the consumer movement are to overcome stigma and prevent discrimination in policies affecting persons with mental illness; to encourage self-help and a focus on recovery from mental illness; and to draw attention to the special needs associated with a particular disorder or disability, as well as by age or gender or by the racial and cultural identity.

Mental Health in Lake County

Epidemiologic surveys indicate that one in five Americans has a mental disorder in any one year. Fifteen percent of the adult population use some form of mental health service during the year. Eight percent have a mental disorder; 7 percent have a mental health problem. Twenty-one percent of children ages 9 to 17 receive mental health services in a year.

The Behavioral Risk Factor Surveillance Survey cited earlier asked Lake County residents, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?" Twenty-six percent (26.0%) responded by saying 1 to 7 days. Another 12.1% said that their mental health was not good for 8 to up to 30 days during the previous month. The responses from respondents for all five counties that boarder on Cook County, the collar counties, responded 24.0% for 1 to 7 days and 12.8% for 8 to 30 days.

"Hospitalization" means the treatment of a person in an acute care hospital as an inpatient. A "person subject to involuntary admission" or "subject to involuntary admission" means: 1. a person with mental illness and who because of his or her illness is reasonably expected to inflict serious physical harm upon himself or herself or another in the near future; or 2. a person with mental illness and who because of his or her illness in unable to provide for his or her basic physical needs so as to guard himself or herself from serious harm.

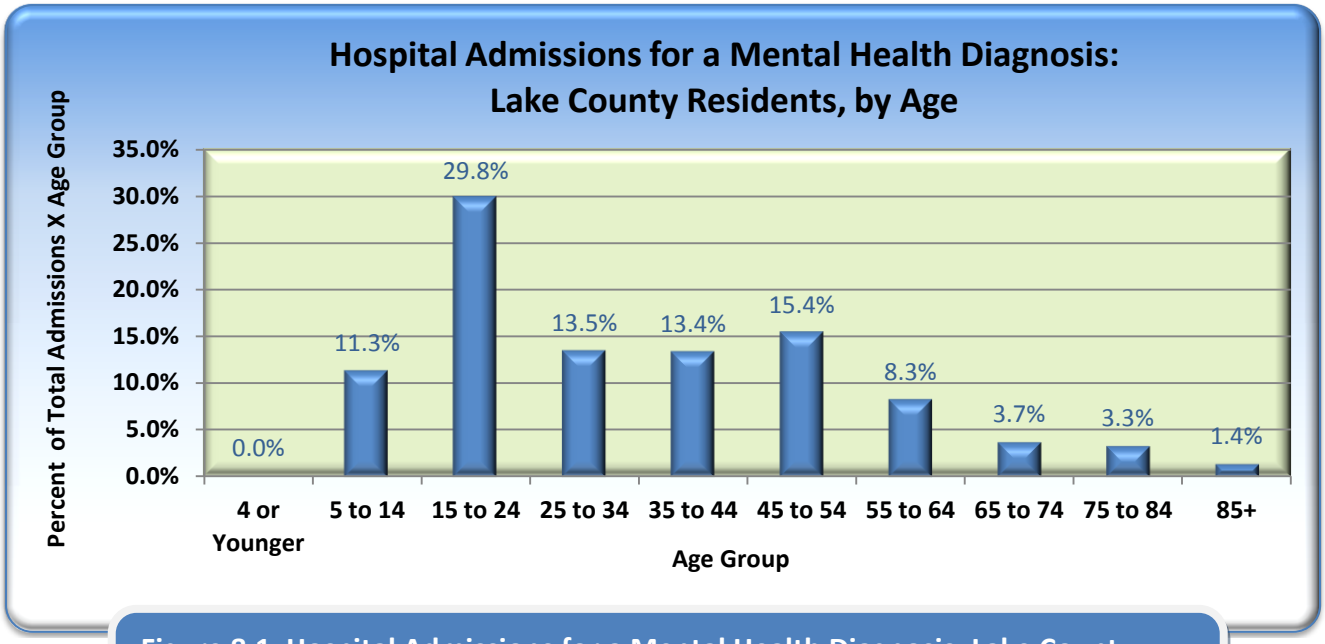


Figure 8.1 Hospital Admissions for a Mental Health Diagnosis: Lake County Residents, by Age (2009-2010)
Source: IDPH/Illinois Survey of Hospital Discharges (2009-2010).

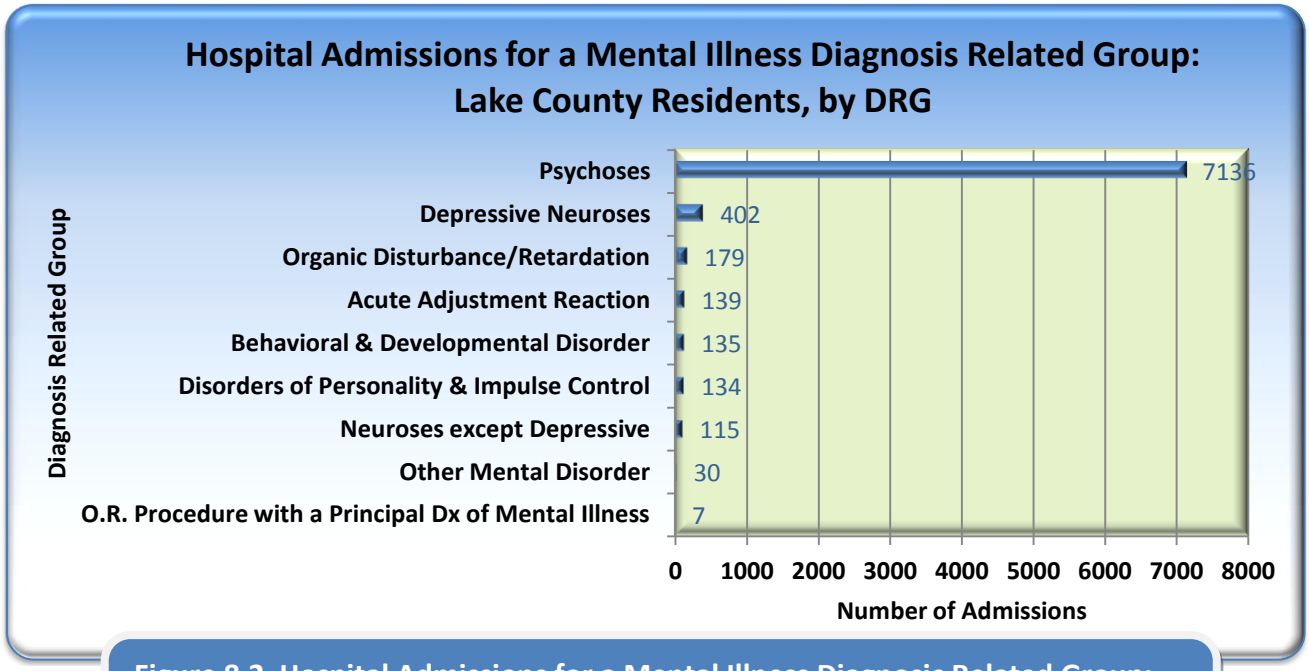


Figure 8.2 Hospital Admissions for a Mental Illness Diagnosis Related Group: Lake County Residents, by DRG (2009-2010)
Source: IDPH/Illinois Survey of Hospital Discharges (2009-2010).

Alcohol/Drug Abuse/Dependence

Alcohol abuse/dependence defined strictly by diagnostic criteria affects approximately five percent of the adult American population. According to less rigid criteria, 10 percent of the population is estimated to be problem drinkers. Alcohol abuse/dependence has emerged as a leading contributor to a plethora of health problems, including falls, burns, mental illness, motor vehicle crash injuries, fetal alcohol syndrome and

suicide. Abuse/dependence also leads to decreased employee productivity and increased absenteeism, family dysfunction, social impairment, financial difficulties, and emotional problems. Alcohol abuse refers to a pattern of pathological use of alcohol that results in impaired social or occupational functioning for at least one month. Symptoms of alcohol dependence include tolerance (the need for increased amounts of alcohol to achieve the desired effect or a diminished effect with regular use of the same amount) and withdrawal (the "shakes" or malaise, which are relieved by drinking after a period of cessation of or reduction in drinking). What we do not necessarily have good statistical measures of at this point relate to how many people are drug dependent/abusers and how many are dually diagnosed with alcohol/drug problems and a mental illness.

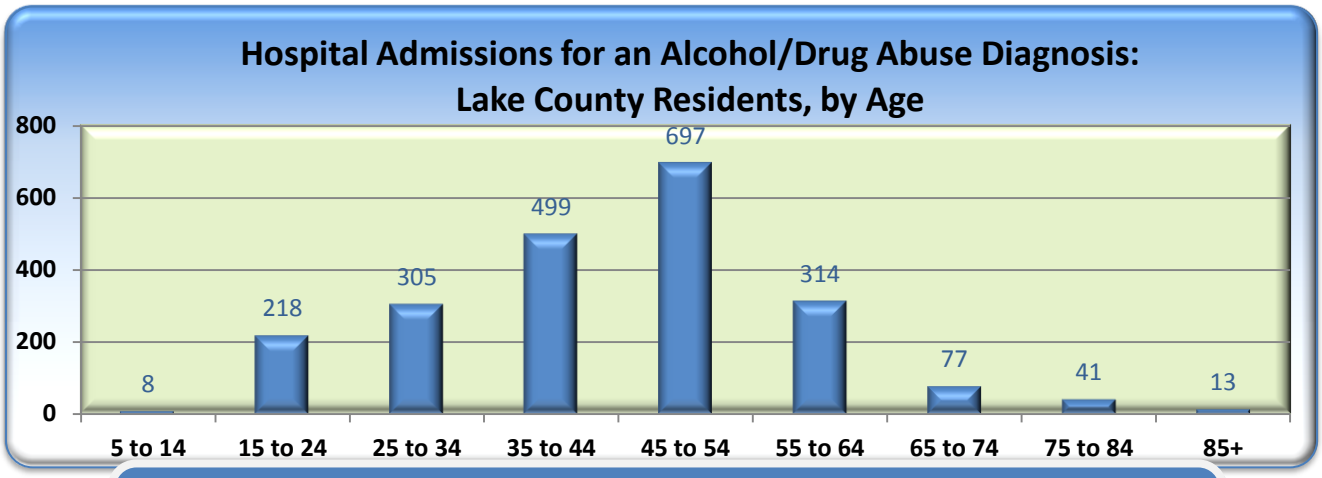


Figure 8.3 Hospital Admissions for an Alcohol/Drug Abuse Diagnosis: Lake County Residents, by Age (2009-2010)
Source: IDPH/Illinois Survey of Hospital Discharges (2009-2010).

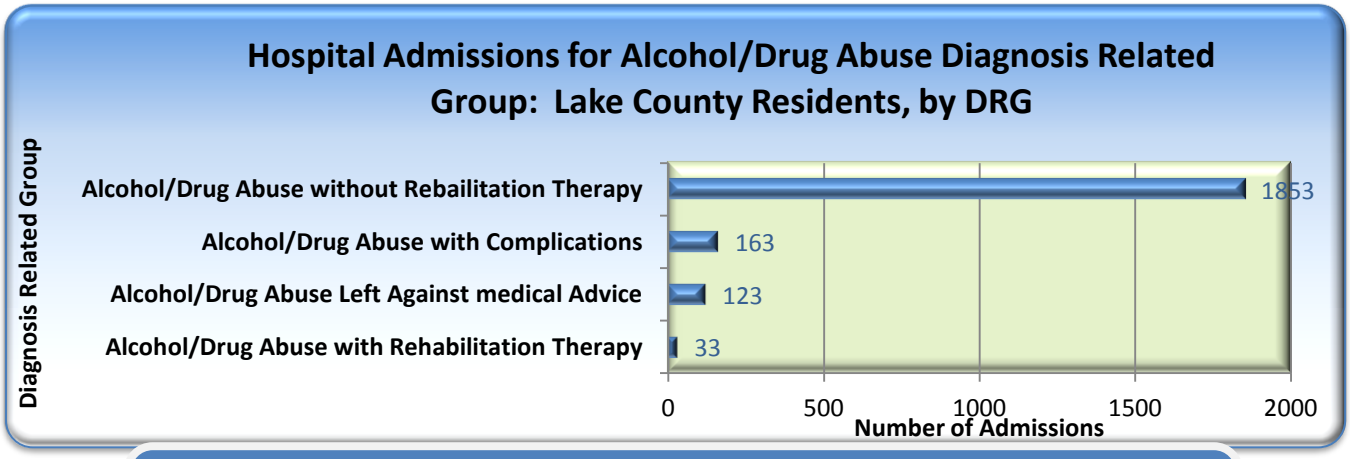


Figure 8.4 Hospital Admissions for an Alcohol/Drug Abuse Diagnosis Related Group: Lake County Residents, by DRG (2009-2010)
Source: IDPH/Illinois Survey of Hospital Discharges (2009-2010).

Increase in Deaths Due to Substance Abuse

A recent report from the Office of the Lake County Sheriff showed that the number of substance abuse deaths in Lake County was 92 in 2010. This is up significantly from 30 deaths in 1998. The Lake County death rate due to heroin use has nearly tripled over just a 3 year period of time (35 deaths in 2010, up from 13 in 2007).

Suicidal Behaviors

Suicide is a serious potential outcome of mental illness and mental disorders. Mental disorders such as various forms of depression, schizophrenia, panic disorder, adjustment and stress reactions as well as alcohol and other drug abuse have been implicated in both attempted and completed suicides. For young males, in particular, antisocial personality disorder is also frequently associated with suicidal behavior.

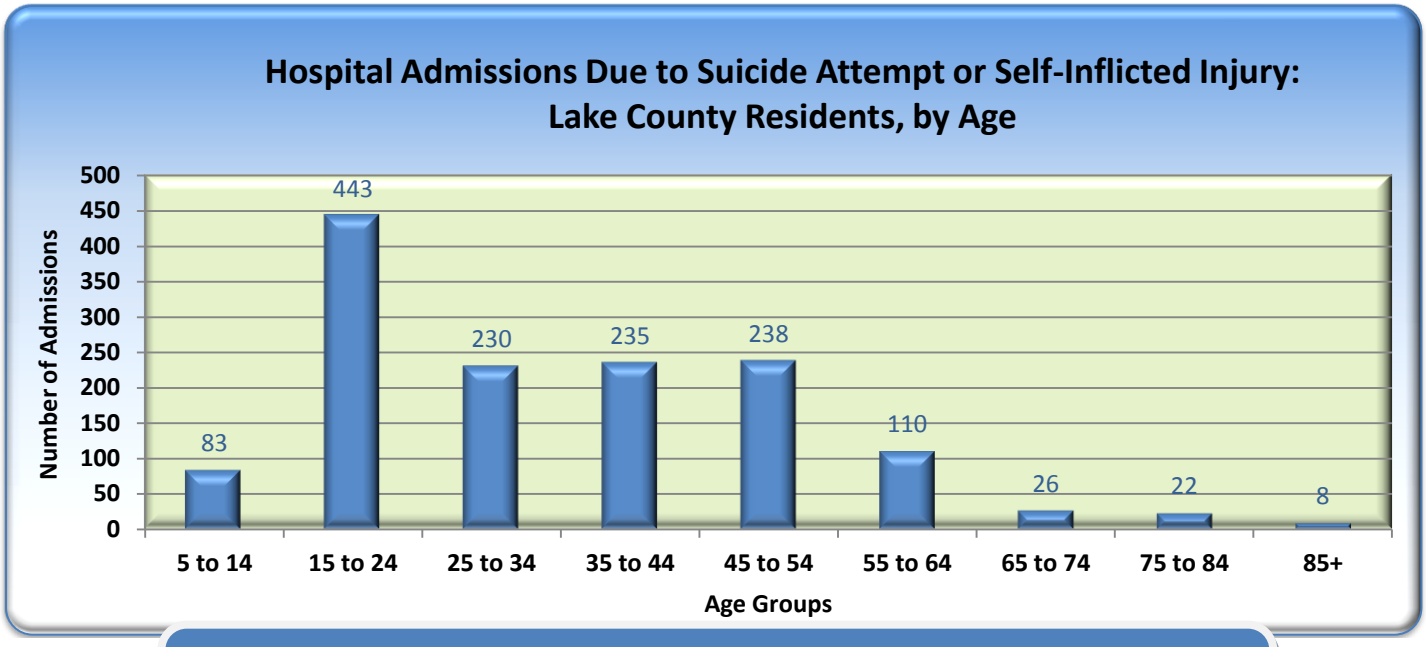


Figure 8.5 Hospital Admissions Due to Suicide Attempts or Self-Inflicted Injury: Lake County Residents, by Age (2009-2010)
Source: IDPH/Illinois Survey of Hospital Discharges (2009-2010).

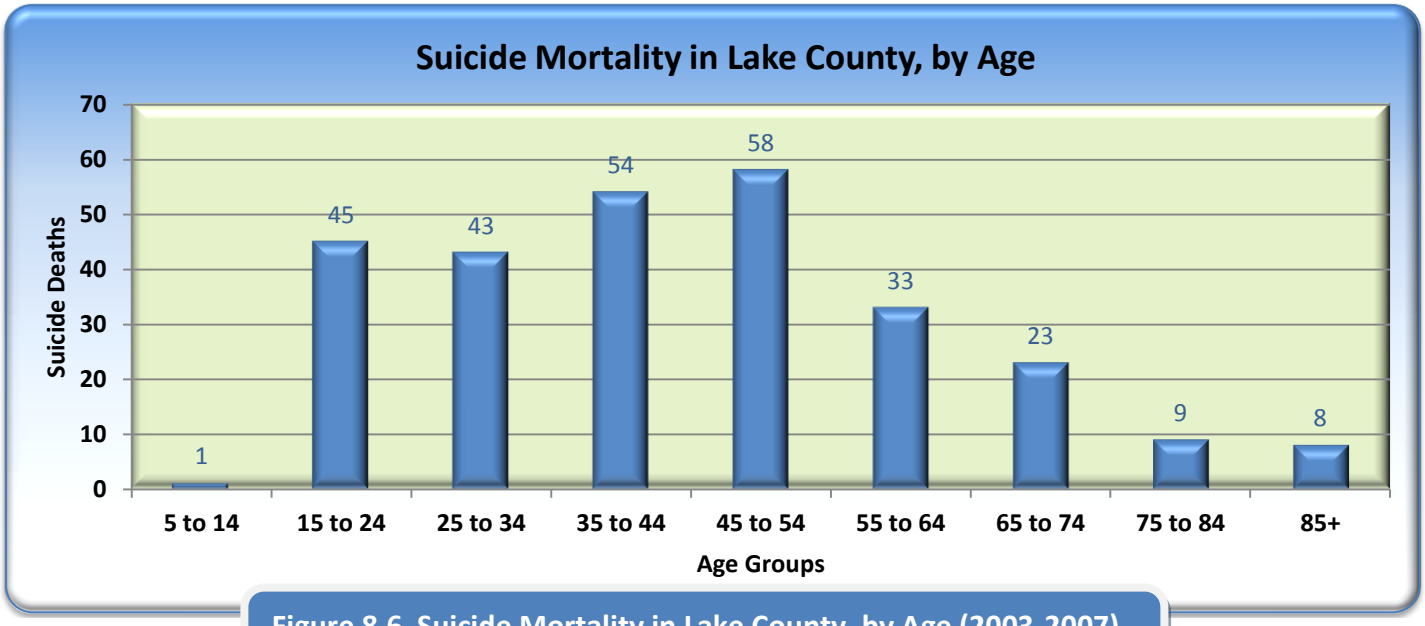


Figure 8.6 Suicide Mortality in Lake County, by Age (2003-2007)
Source: IDPH Vital Statistics (2003-2007).

Table 8.1 Mortality Rates Due to Suicide: National, Lake County, and Healthy People 2020			
Indicator	**National Current**	**Healthy People 2020 Goal**	**Lake County**
Reduce the suicide rate	11.3/100,000	10.2/100,000	7.5/100,000

Source: Healthy People 2020; IDPH Vital Statistics (2004-2008).

Challenges and Trends within the Field of Behavioral Health Service Provision

Fiscal challenges due to the economic downturn, problems with Medicaid reimbursement at the state level, and political feuds within state government all have a potential negative impact on the provision of behavioral health services. Supply of BHS has traditionally been lower than demand. Four years of state funding cuts has significantly limited and delayed access to care.

There is an increasing emphasis upon bridging the services of behavioral medicine, physical medicine, and prevention. Within the LCHD/CHC, this means increased coordinated efforts between Behavioral Health Services, Primary Care Services, and Population Health Services. It also requires implementing evidence based practices, proven effective for populations with multiple concerns.

Table 8.2 LCHD/CHC Behavioral Health Services: Summary of Mental Health Services Provided (2010)		
Program	**Cases – Individual, Couple, or Family**	**# of Counseling Sessions (a), Client Days (b), Hours of Service (c)**
Mental Health Services		
Community Support Services		
Assertive Community Treatment (ACT)	61	5,484 (a)
Community Case Management	779	8,370 (a)
Therapeutic Intensive Monitoring (TIM)	64	1,926 (a)
Outpatient Services		
Children and Adolescents Behavioral Services (CABS)	1,433	19,684 (a)
Counseling	2,204	11,784 (a)
Crisis Contacts	827	1,691 (c)
Medical	1,595	5,690 (a)
Psycho-social Rehabilitation Program (PRP)	196	18,107 (c)
Residential Services		
Apartments	161	11,612 (b)
Community Integrated Living Arrangements (CILA)	25	2,460 (b)
Group Home	43	4,562 (b)
Respite Care	165	1,426 (b)
Housing Case Management	n/a	38 (a)
Community Support – Individual (CSI)	n/a	4,082 (a)
Community Support – Group (CSG)	n/a	6,295 (a)

Source: LCHD/CHC 2010 Annual Report.

LCHD/CHC Behavioral Health Services (BHS) is involved with various criminal justice components of Lake County government. This includes both the Therapeutic Intensive Monitoring (TIM) court, drug/alcohol and mental health court, as well as partnering with the State of Illinois Training Board to provide training for police offers in responding to crisis calls involving individuals with mental illness (Crisis Intervention Team, or CIT). A needed piece of BHS' involvement with the criminal justice systems is expanding care to persons leaving jail who are placed on psychiatric medications with little follow-up. This impacts clients as well as the community, as lack of follow-up contributes to recidivism. Determining how to break the pattern of institutionalization will also continue to be a challenge to be addressed.

Table 8.3 LCHD/CHC Behavioral Health Services: Summary of Substance Abuse Services Provided (2010)

Program Type / Program Name	Cases – Individual, Couple, or Family	# of Counseling Sessions (a), Client Days (b), Hours of Service (c)
Substance Abuse Services		
Addictions Treatment Program (ATP)		
Detox	549	2,429 (b)
Rehab	556	4,551 (b)
Substance Abuse Program (SAP)		
Outpatient Services	305	2,142 (a)
Project SAFE	49	1,580 (c)
Methadone Counseling	135	n/a
Intensive Outpatient Program	543	17,945 (c)
Women's Residential Services		
Women	98	5,730 (b)
Children	30	868 (b)
Case Management (MISA)	n/a	929 (c)
Youth Services	208	3,550 (c)

Source: LCHD/CHC 2010 Annual Report.

The Impact of Social Disparities: Considering Waukegan as an Example of Need Related to Mental Health, Substance Abuse, Domestic Violence, Housing and Other Services

The need in Waukegan for mental health and substance abuse services is severe and the few systems that do exist are overwhelmed with waiting lists of at least several weeks. Additionally, funding is continually threatened and new requirements are regularly made of providers, making caseloads even more stressful.

- Vista Medical Center West is the only hospital (1of 7) in Lake County that admits patients needing psychiatric care, adults only; they have no medical de-tox services.
- The LCHD/CHC provides Adolescent Behavioral Services for substance abusing teens; there is a Mental Health Group Home and a number of scattered site apartments for chronically mentally ill adults, without children. And there are outpatient mental health services. Additionally, the

Health Department provides adult inpatient alcohol/drug detoxification and rehabilitation, outpatient substance abuse counseling, methadone treatment, and a women's residential program that permits children ages 5-11 to accompany their mother during treatment. And the Health Department has a child and adolescent behavioral health program but mainly accommodates those in crisis.

- NICASA provides a continuum of prevention, early intervention, and outpatient treatment services for adolescents and adults. Included in its array of services is counseling center for adolescents, adults and families in Waukegan and an intensive outpatient and outpatient treatment program for women in North Chicago. The program provides extensive wrap-around services including transportation, childcare from newborn to 12 years old, referrals, and home visits to ascertain life skills training needs and safety issues. The program, however, is challenged by the lack of mental health services available in the county.
- NICASA is also a Family Advocacy Center by the Department of Children and Family Services. At both its Waukegan and North Chicago facility, families with children under the age of 18 can receive extensive case management, referrals and other supportive services – with or without a diagnosis of substance abuse. This program also is challenged with the mental health needs of its clients.
- Additionally, there are several other agencies that provide substance abuse treatment but only two of which serve Waukegan: Renacer Latino and Family First. Their capacity is limited.
- There are a few private practices but cost is often a barrier.
- Arden Shore also provides mental health services to adults.
- There are several residential programs for clients recovering from substance abuse. They include: Gateway, Haymarket (not in Lake County), Rosecrans (also not in Lake County) and Women's Residential Services. All have high demand and funding challenges and none of them are in Waukegan.
- There are some transitional living facilities: Bridge House, Oxford Homes, The House That Grace Built and Mary Pat Maddex Place. Demands on their services are high, funding is insecure; two are in Waukegan.

Domestic Violence is a major issue in Waukegan. Providers in the community are very conscious of the prevalence and their staff confirms it over and over as they hear from clients. CDC states that 1:4 women are at risk for domestic violence.

- Those agencies focused on domestic violence, include Staben House and A Safe Place for Help, Family First, Most Blessed Trinity Church, NICASA and Lake County State's Attorney, Victim/Witness Unit. There is a severe shortage of shelter facilities for victims.
- Teens are especially vulnerable to being overlooked as victims of domestic violence.

Homelessness has become a growing problem with the recent financial crisis and the resulting foreclosures. Lake County Coalition for the Homeless released a report about 3 years ago indicating that it takes two and a half minimum wage jobs to afford a two bedroom apartment in Lake County; that is, 100 hours of work/week.

- Transitional housing agencies that address women and children include: Christian Outreach of Lutherans, PADS Crisis Services, Community Action Partnership of Lake County, Daisy's Resource and Developmental Center, Samaritan House, Staben House, NICASA Women's Services, Mary Pat Maddex Place and Lake County Haven; all serving in the Waukegan area.

What is lacking is general awareness by the public and policy makers of the extent of these issues, what the impact is on families and on the community and what is needed in the short and long term. Additionally, the engagement and involvement of community residents is necessary to make significant and sustainable change; and there has been little thus far.

Parenting has a critical role in the life of a child and the value and importance of that role with supporting resources is clearly needed.

Economic circumstances play a prominent role in the welfare of a family. It is a critical issue for a poorly educated/skilled workforce in a demanding economy. There is need for job creation, training and development. And more, children being ready to start school and staying in school is necessary to longer term solutions. Teens need productive days filled with education and skill training, by positive, supportive adults, but many are left idle and unsupervised.

Greater awareness of gangs and their impact on the community is needed as well as more youth development so children and teens make better choices.

Conclusion

Many individuals with mental health and substance abuse problems are uninsured, putting them at a disadvantage for receiving integrated healthcare. According to a 2006 report from the National Association of State Mental Health Program Directors, persons with serious mental illness (SMI) are now dying 25 years earlier than the general population. While suicide and injury account for about 30-40% of excess mortality, 60% of premature deaths in persons with schizophrenia are due to medical conditions such as cardiovascular, pulmonary, and infectious diseases. Many behavioral health agencies have the capacity to screen for common medical conditions but also report a variety of barriers to providing medical care either on site or via referral. The integration of behavioral healthcare and physical healthcare will also be a continuing challenge and concern in the coming years.

Illinois' publically funded mental health and substance abuse services involve separate state-level leadership, separate licensing and quality assurance standards for provider agencies, and separate management information systems to support reimbursement of services and accountability. While behavioral healthcare has attempted to integrate mental health and substance abuse services, this too will be a continuing issue for Illinois providers.

Section IX: Infectious Diseases

Infectious diseases (ID), also known as communicable diseases, contagious diseases or transmissible diseases are disorders caused by bacteria, viruses, fungi or parasites and aberrant proteins known as prions (as in the case of 'mad cow" disease). Transmission of ID can occur in various ways including physical contact, contaminated food, body fluids, objects, airborne inhalation, or through vector organisms. In the beginning of the 20th century, ID were the leading cause of deaths in the US. Fortunately, many notable public health achievements have occurred during that century, including advances in controlling ID.

According to the Centers for Disease Control and Prevention (CDC), the Ten Great Public Health Achievements in the United States include Vaccination, and Control of Infectious Diseases (ranked number 1 and 4, respectively). Successful vaccination campaigns have resulted in the eradication of smallpox; elimination of poliomyelitis; and control of measles, rubella, tetanus, diphtheria, Haemophilus influenzae type b, and other infectious diseases in the United States and other parts of the world. Control of ID has also resulted from clean water and improved sanitation. Infections such as typhoid and cholera transmitted by contaminated water, a major cause of illness and death early in the 20th century, have been reduced dramatically by improved sanitation. In addition, the discovery of antimicrobial therapy has been critical to successful public health efforts to control infections such as tuberculosis and sexually transmitted diseases infections (see Figure 9.1 below).

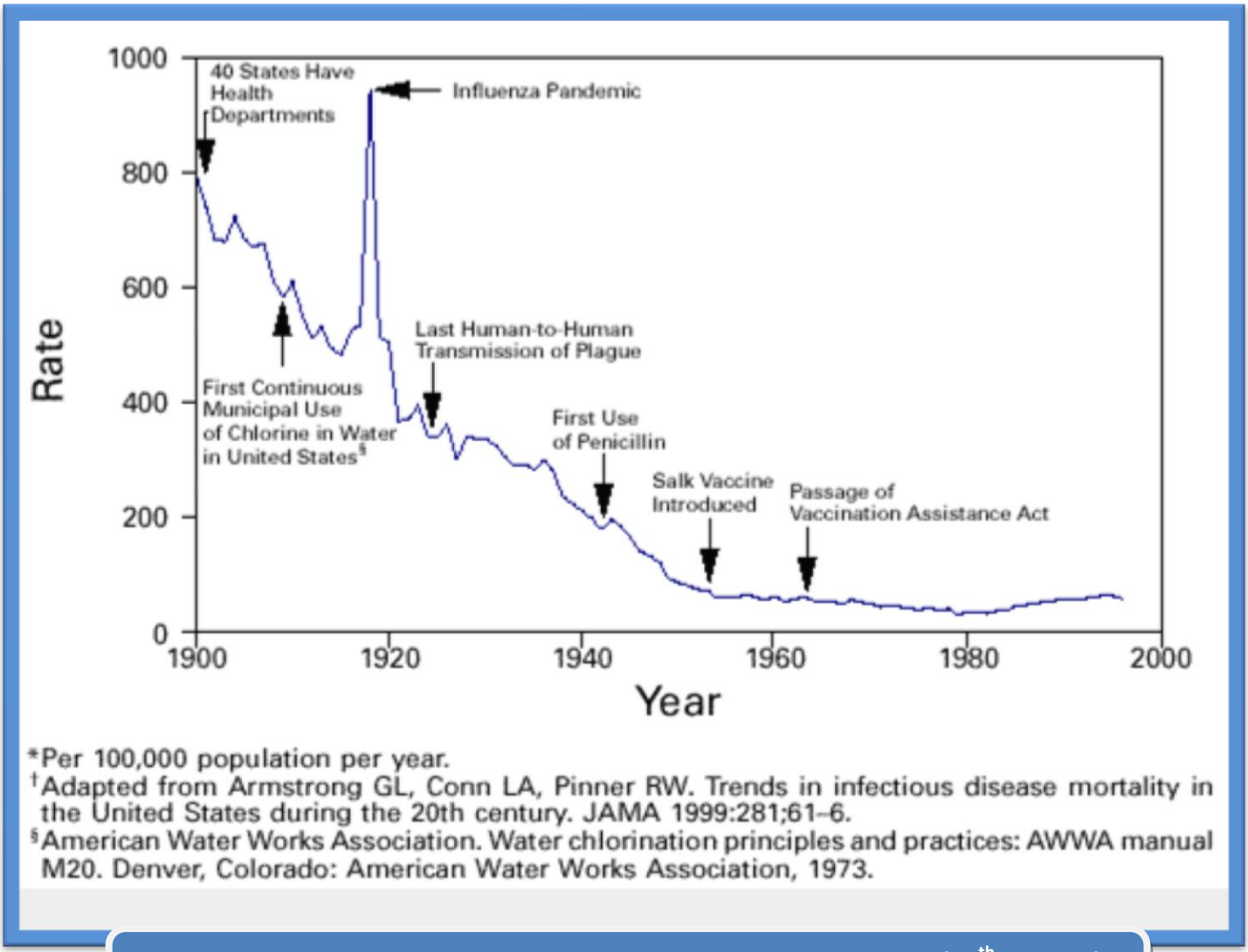


Figure 9.1 Trends in Infectious Disease Mortality in the United States (20th Century)
Source: JAMA (1999).

Those successes created a common belief in the medical community in the middle of the 20th century that all the major infections would soon disappear. An U.S. Surgeon General even made a comment in 1968, "…that it might be possible with interventions such as antimicrobials and vaccines to "close the book" on infectious diseases." Unfortunately, after many years of success in combating ID, the trend has changed and, currently, ID continue to be among the leading causes of death globally (see Table 9.1 below; ID highlighted in bold).

Table 9.1 The Ten Leading Causes of Death: World (2008)

Rank	Cause of Death	Number of Deaths (millions)	% of Deaths
1	Ischemic heart disease	7.25	12.8%
2	Stroke and other cerebrovascular disease	6.15	10.8%
3	**Lower respiratory infections**	**3.46**	**6.1%**
4	Chronic obstructive pulmonary disease	3.28	5.8%
5	**Diarrheal diseases**	**2.46**	**4.3%**
6	**HIV/AIDS**	**1.78**	**3.1%**
7	Trachea, bronchus, lung cancers	1.39	2.4%
8	**Tuberculosis**	**1.34**	**2.4%**
9	Diabetes mellitus	1.26	2.2%
10	Road traffic accidents	1.21	2.1%
	Total for rows 3, 5, 6, and 8	**9.04**	**15.9%**

Source: World Health Organization (2008).

Besides the impact on mortality, ID account for nearly 30 percent of all disability-adjusted life years which reflect the number of healthy years lost to illness. In addition to the effects of most common ID, of particular current concern are the problems of: A. rapidly developing antibiotic resistance; B. emerging diseases; C. re-emerging diseases; D. the speed of reaction to the appearance of virulent strains posing pandemic threats; E. sexually transmitted infections (a subcategory of ID); and F. Tuberculosis (also a subcategory of ID).

A. In regard to antibiotic resistance an illustration can be made with *Staphylococcus aureus* (*Staph infection*). Staph is one of the major resistant pathogens and is extremely adaptable to antibiotics. It was one of the earlier bacteria in which penicillin resistance was found. Methicillin was then the antibiotic of choice and MRSA (methicillin-resistant *Staphylococcus aureus*) soon became common in hospitals. This left vancomycin as the only effective agent available at the time. However, strains with intermediate levels of resistance, termed VISA (vancomycin intermediate *Staphylococcus aureus*), began appearing quickly in early 2000 in the U.S.
B. *Newly emerging disease* is a disease that has never been recognized before. Examples include HIV/AIDS, SARS, Nipah virus encephalitis (portrait in the recent movie Contagion), variant Creutzfeld-Jakob disease (vCJD), and Carbapenem-resistant enterobacteriaceae.
C. Re-emerging, or resurging, diseases are those that have been around for decades or centuries, but have come back in a different form or a different location. Examples are an outbreak of cholera in Haiti, West Nile virus , and Monkeypox in the United States, and Measles.
D. Consistent re-assortments of flu virus present a major public health concern due to an ever present threat of flu pandemic. In addition to easily identifiable and closely watched pathogenic strains, less pathogenic strains could circulate undetected in mammals and mutate into future pandemic threats.

E. The burden of STIs on the health care system and healthcare expenditure is great. Even excluding HIV, STIs are consistently among the most common conditions leading to health care visits. In all nations, but particularly in developing countries, STIs result in substantial productivity losses for individuals and communities.
F. Besides a devastating impact on human's life and health, TB causes affects world-wide economy as well. The World Bank estimates that loss of productivity attributable to TB is 4 to 7 percent of some countries' GDP. Many TB-endemic nations can't afford to treat their own patients, leaving donor countries to procure TB drugs for the developing world. Treatment for drug-resistant TB is financially out of reach for most who suffer from the disease.

In concert with the above-mentioned categories, the following part of the Community Health Status Assessment Report provides some illustrations to corresponding groups of ID and public health threats.

GENERAL GROUP OF INFECTIONS

There are about 80 reportable ID in the state of Illinois. The information provided in Table 9.2 presents the numbers and rates in Lake County.

Table 9.2 Selected Communicable Diseases in Lake County (2007-2010)

Communicable Disease	2010		2009		2008		2007	
	#	Rate *	#	Rate *	#	Rate *	#	Rate *
Amebiasis	**		**		**		**3**	0.42705903
Cryptosporidiosis	15	2.10506521	5	0.7016884	7	0.98922871	3	0.42705903
E. Coli 0157:H7	2	0.28067536	5	0.7016884	2	0.28263678	3	0.42705903
Giardiasis	35	4.91181882	33	4.63114346	41	5.79405389	48	6.832944472
Hepatitis A (Acute)	3	0.42101304	8	1.12270144	7	0.98922871	8	1.138824079
Hepatitis B (Acute)	10	1.40337681	19	2.66641593	4	0.56527355	15	2.135295148
Histoplasmosis	3	0.42101304	2	0.28067536	2	0.28263678	1	0.14235301
Invasive Group A Strep	19	2.66641593	16	2.24540289	12	1.69582065	12	1.708236118
Invasive Haemophilus Influenzae	1	0.14033768	10	1.40337681	10	1.41318388	6	0.854118059
Legionellosis	12	1.68405217	11	1.54371449	3	0.42395516	5	0.711765049
Listeriosis	3	0.42101304	2	0.28067536	2	0.28263678	1	0.14235301
Lyme Disease	13	1.82438985	8	1.12270144	9	1.27186549	6	0.854118059
Pertussis	89	12.4900536	115	16.1388333	154	21.7630317	23	3.274119226
Salmonellosis	115	16.1388333	107	15.0161318	114	16.1102962	143	20.35648041
Shigellosis	14	1.96472753	45	6.31519562	29	4.09823324	21	2.989413207
Vibrio Parahaemoliticus	2	0.28067536	0	0	1	0.14131839	0	0

Sources: IDPH and LCHD/CHC CD Data (2007-2010).
Cases are recorded from December through November.
Rates are per 100,000 population; based on U.S. Census Bureau Estimates.
* Counts of 9 or less do not meet the standards of reliability when rates are calculated.

As it follows from Table 9.2, the most common reportable infections in Lake County are: A. Salmonellosis, B. Pertussis, C. Giardiasis, and D. Shigellosis (Dysentery).

A. Salmonellosis

Salmonellosis is the most common bacterial infectious cause of food-borne disease in the United States and Lake County. This infection causes significant morbidity and mortality. One third of untreated patients experience complications that may lead to death. *Salmonellosis* has increasing antimicrobial resistance, prevalence, virulence, and adaptability. Although the rate of Salmonellosis is stable in Lake County its annual variations are affected by sporadic outbreaks tied to food service facilities.

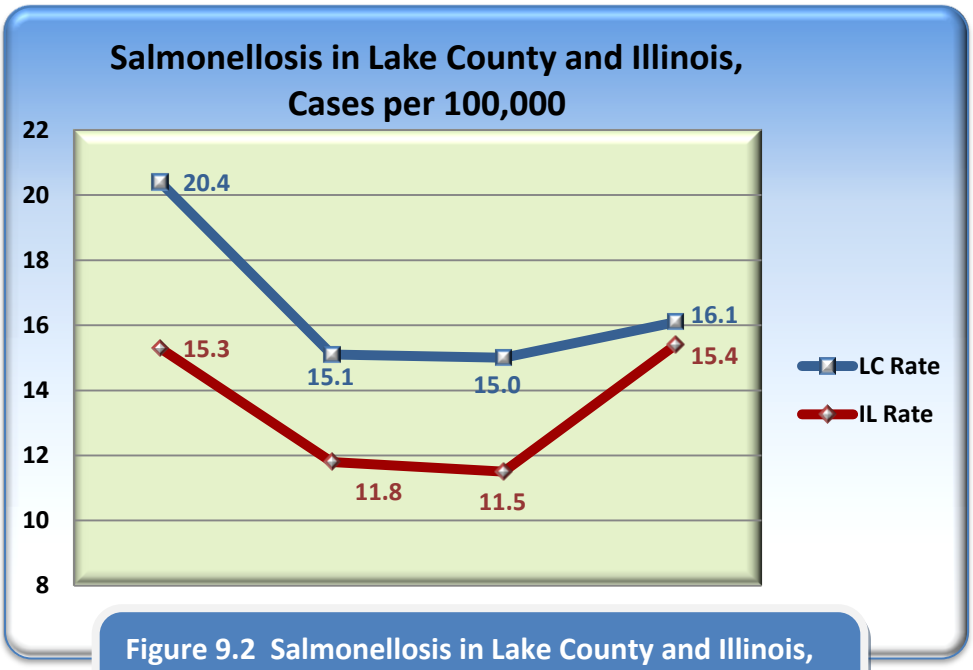


Figure 9.2 Salmonellosis in Lake County and Illinois, Cases per 100,000 (2007-2010)
Source: IDPH and LCHD/CHC Communicable Diseases Data.

B. Pertussis

Pertussis (or Whooping Cough) presents another important challenge for public health. This disease is highly contagious and causes a cough typically lasting 21 days or longer. This disease is most dangerous to infants who may develop pneumonia, convulsions, and rarely, brain damage or death. Both before and after vaccination began in 1940, the reported occurrence of pertussis has been cyclical with a period of 3 to 4 years.

Prior to 2004, there were approximately 8 to 10 pertussis cases reported in Lake County annually. In 2004, the situation began to change nation-wide and the number of cases in Lake County increased to 164 and remains elevated ever since. Several reasons for this increase of have been proposed. These reasons include the following: genetic changes in the pathogen, lessened potency of pertussis vaccines, waning of vaccine-induced immunity, greater awareness of pertussis, and the general availability of better laboratory tests. Currently, the strategy to control pertussis focuses on improving vaccination rates among children, offering a booster vaccine to teenagers and adults, and early identification and treatment of cases and contacts.

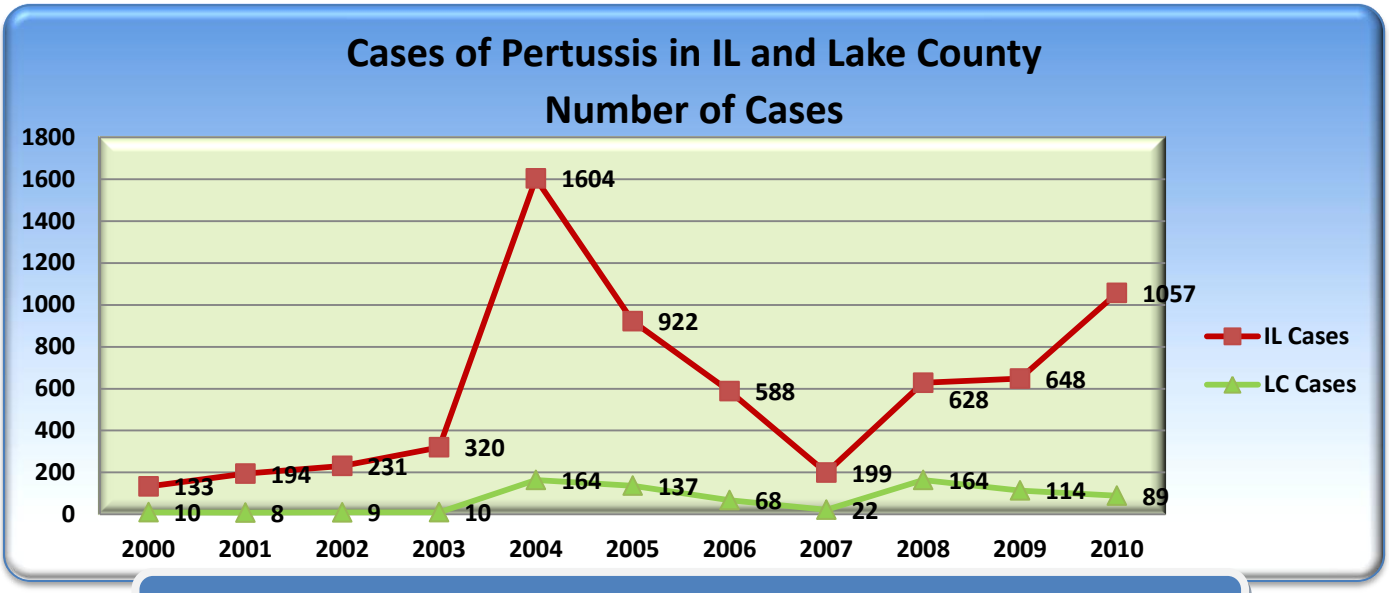


Figure 9.3 Pertussis in Lake County and Illinois, Number of Cases (2000-2010)
Source: IDPH and LCHD/CHC Communicable Diseases Data.

C. Giardiasis

Giardiasis is a major diarrheal disease found throughout the world. It is caused by an intestinal parasite and, in the United States, person-to-person transmission is often associated with poor hygiene and sanitation. Diaper changing and inadequate hand washing are risk factors for transmission from infected children. Children attending day care centers, as well as day-care workers, have a higher risk of infection. Water-borne transmission is responsible for a significant number of epidemics in the United States, generally following ingestion of unfiltered surface water. In Lake County, the rates of Giardiasis are stable, with cases often associated with asymptomatic young children, travel and outdoor activities such as hiking, camps and swimming in lakes and rivers.

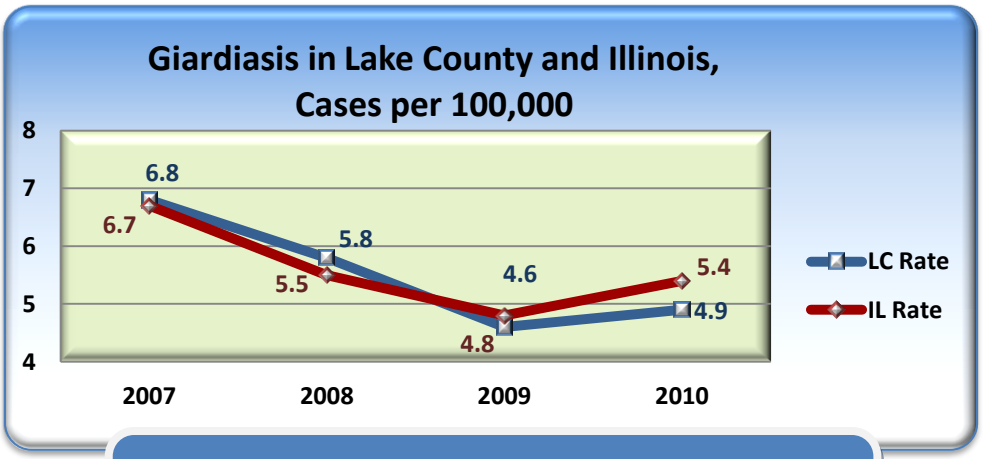


Figure 9.4 Giardiasis in Lake County and Illinois, Cases per 100,000 (2007-2010)
Source: IDPH and LCHD/CHC Communicable Diseases Data.

D. Shigellosis (Dysentery)

Most people who are infected with dysentery develop diarrhea (often bloody), fever, and stomach cramps starting a day or two after they are exposed to the bacteria. A severe infection with high fever may be associated with seizures in children less than 2 years old. Community-wide outbreaks of shigellosis can be difficult to control because of the ease of person-to-person transmission among young children and families, high secondary attack rates, and multiple points of exposure. Effective control efforts should include: communitywide recognition of the problem; diversified and culture-specific educational efforts to promote handwashing and hygiene; and supervised handwashing for children. Similar to salmonellosis, the rate of shigellosis is stable in Lake County, although its annual variations are affected by sporadic outbreaks tied to food service facilities.

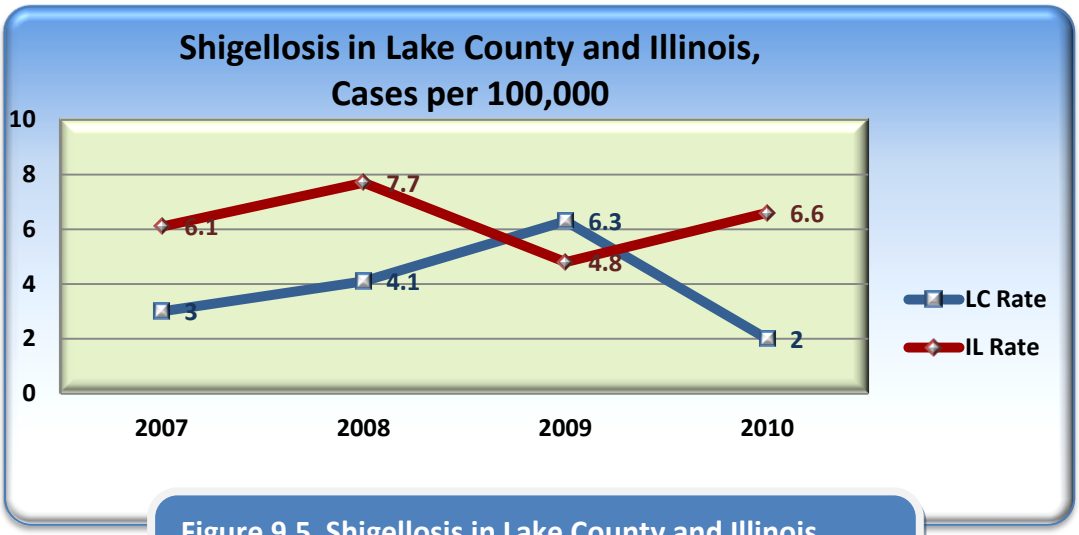


Figure 9.5 Shigellosis in Lake County and Illinois, Cases per 100,000 (2007-2010)
Source: IDPH and LCHD/CHC Communicable Diseases Data.

ANTIOBIOTIC-RESISTANT INFECTIONS (MRSA)

In the US 1.7 million hospital acquired infections occur each year and 70 % are resistant to at least 1 antibiotic. Since the first case of MRSA in the U.S. was identified in 1981, this pathogen has spread rapidly and currently accounts for almost 70% of all *Staphylococcus aureus* (S) infections. Up until the mid 1990's MRSA was uncommon in people outside of nursing homes or among people who had not recently been hospitalized. But then a new hybrid strain called the Community acquired MRSA (CA-MRSA) appeared. This strain is more easily treated but also more virulent. . Although no major MRSA outbreaks have been reported in Lake County since 2008(when MRSA clusters became reportable in Illinois) LCHD/CHC receives frequent inquiries on individual cases from health care providers and general public.

NEWLY EMERGING DISEASES

In the last 20 years over 25 new infectious disease agents have been identified nation-wide. By far the most concerning are the Carbapenem-resistant enterobacteriaceae (CRE). These bacteria are very difficult to detect with the usual hospital microbiology automated lab systems and there are no new drugs in the pharmaceutical pipeline. In Illinois the first CRE was identified in 2007; since then they have been increasingly found in long term care and hospitalized patients, with the mortality rate of about 40%. There were 3 CRE cases reported in Lake County in 2010.

RE-EMERGING DISEASES

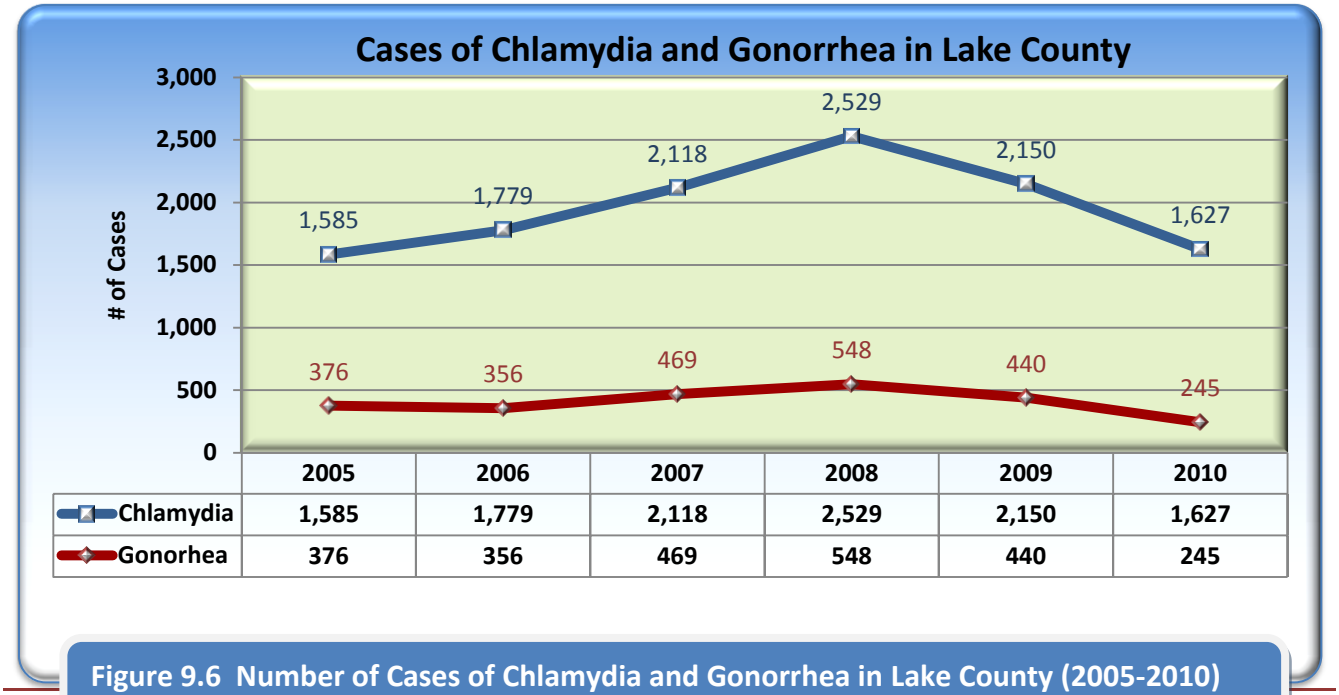
Measles is a disease not frequently seen in Lake County. This is because Illinois began requiring all school children to have a 2nd MMR vaccine in 1992. There were only 2 cases in Lake County in 1995; both cases occurred in unvaccinated children when one 4 year old child returned from vacation in Las Vegas with his family. Then there was a home school child in 2008 who contracted measles from a home-school activity in a different county. This case spread the disease to all 4 of her unvaccinated siblings but no one else outside of that family contracted measles.

PANDEMIC INFLUENZA

The first reported confirmed H1N1 Influenza case was reported on 04/29/2009 to LCHD/CHC in a 14 year old who had been in Monterey Mexico for spring break. During 2009 Flu Pandemic, there were 378 lab confirmed or hospitalized cases with the H1N1 flu in Lake County residents and 5 deaths. 90% of the cases occurred in people under 65 years old. There were two waves of the pandemic, the first in May-July, 2009 and then a larger wave in October –November, 2009. Since then the cases have occurred sporadically.

SEXUALLY TRANSMITTED INFECTIONS

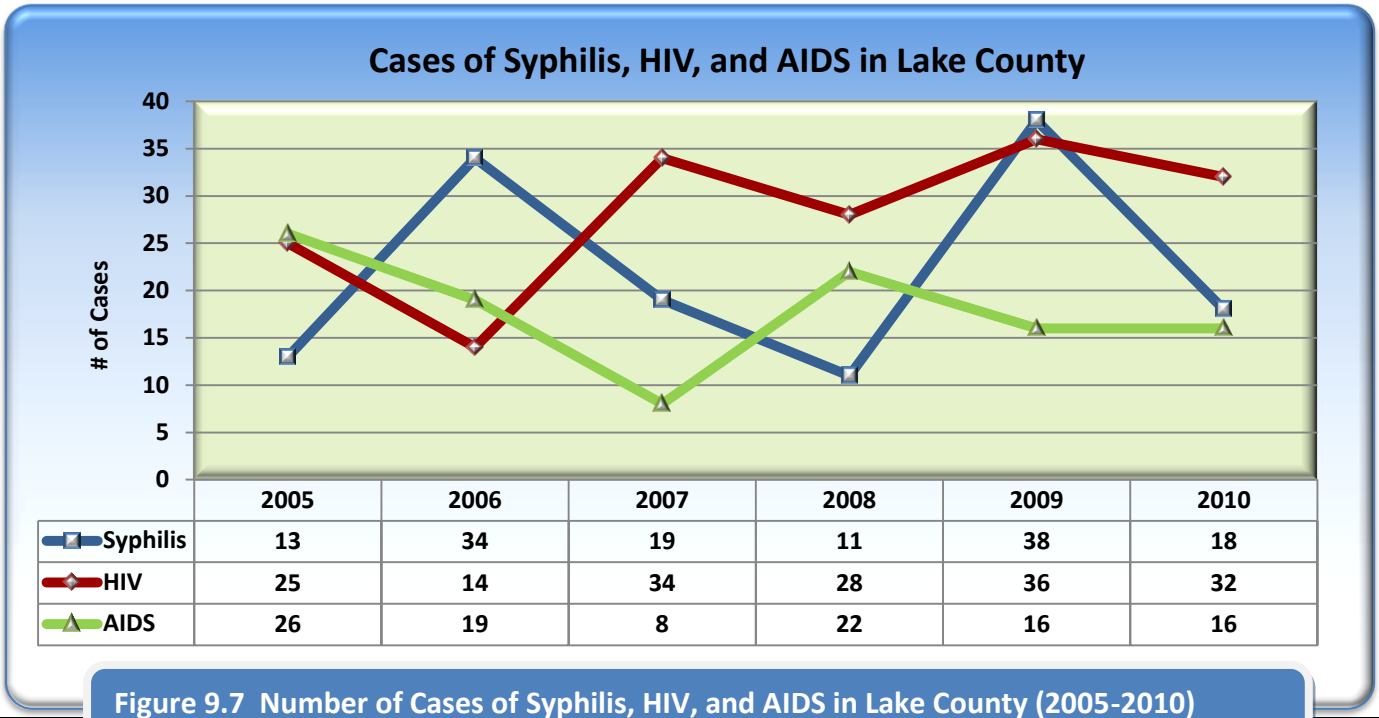
Sexually transmitted infections (STIs) present an interesting and unique challenge for public health. Reportable infections include Chlamydia, Gonorrhea, Syphilis and HIV/AIDS and new infections continue to impact the Lake County area with higher prevalence in our youth and communities of color. Challenges to early detection include stigma related to testing, access to care, an absence of symptoms in many, the emotional and relational impacts having an infection may have. Left untreated, complications of sexually transmitted infections can include infertility, increased morbidity, mortality and continued transmission throughout the community.



	2005	2006	2007	2008	2009	2010
Chlamydia	1,585	1,779	2,118	2,529	2,150	1,627
Gonorrhea	376	356	469	548	440	245

Figure 9.6 Number of Cases of Chlamydia and Gonorrhea in Lake County (2005-2010)
Source: IDPH (2005-2010).

STI prevention, testing and treatment play an important role in the prevention of the sexual transmission of the Human Immunodeficiency Virus (HIV). HIV is the virus that can lead to the development of Acquired Immune Deficiency Syndrome (AIDS). While new HIV infections remain steady, the number of AIDS cases is not truly reflective of the disease burden in our community as treatment has improved health outcomes for HIV positive individuals and reduced the number of new AIDS diagnoses and the overall morbidity and mortality.



	2005	2006	2007	2008	2009	2010
Syphilis	13	34	19	11	38	18
HIV	25	14	34	28	36	32
AIDS	26	19	8	22	16	16

Figure 9.7 Number of Cases of Syphilis, HIV, and AIDS in Lake County (2005-2010)
Source: IDPH (2005-2010).

The Lake County Health Department offers services for the testing and treatment of all sexually transmitted infections and partner services- the notification, testing and treatment of all sexual partners at risk for the same infection, is also conducted for each identified case in Lake County.

TUBERCULOSIS (TB)

There were about 16 new active TB cases reported annually in Lake County between 2007 and 2010; the annual average rate here was lower than for IL for the same time period (2.6 cases/100,000 in Lake County compared to 4.0/100,000 in IL). There is no increasing trend in cases over time (see Figure 9.8).

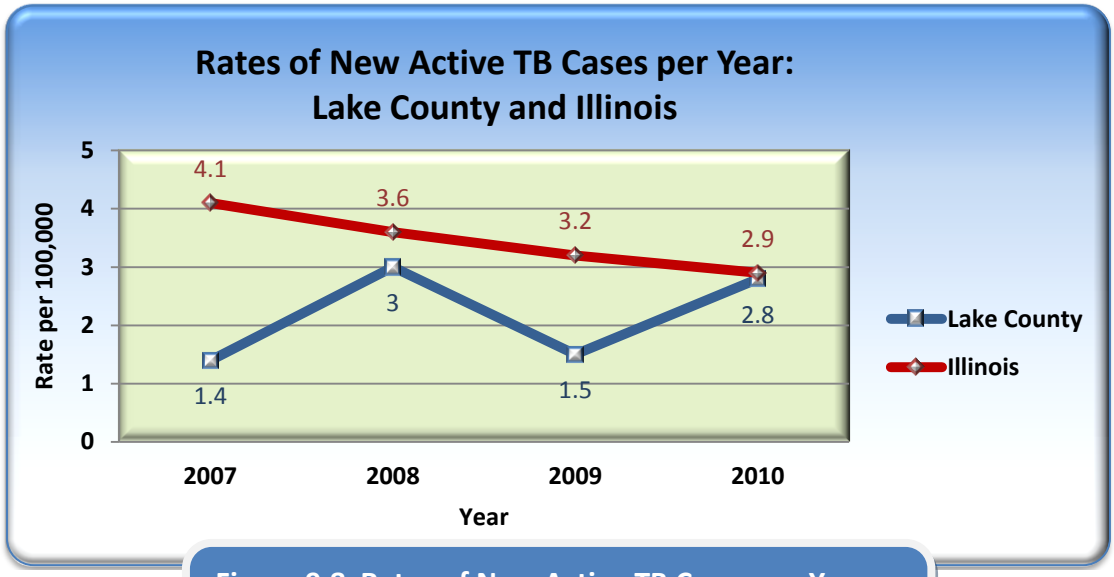


Figure 9.8 Rates of New Active TB Cases per Year: Lake County and Illinois (2007-2010)
Source: IDPH (2007-2010).

Out of 62 cases reported in Lake County between 2007 and 2010, 46 were pulmonary TB (potentially contagious form of TB). By Race/Ethnicity, Asian, non-Hispanic, represented 44% of the cases, followed by Hispanics (of any race), with 37%. Race/Ethnicity specific rates (per 100,000 people of corresponding demographic group) were also the highest among non-Hispanic Asians (see Figure 9.9).

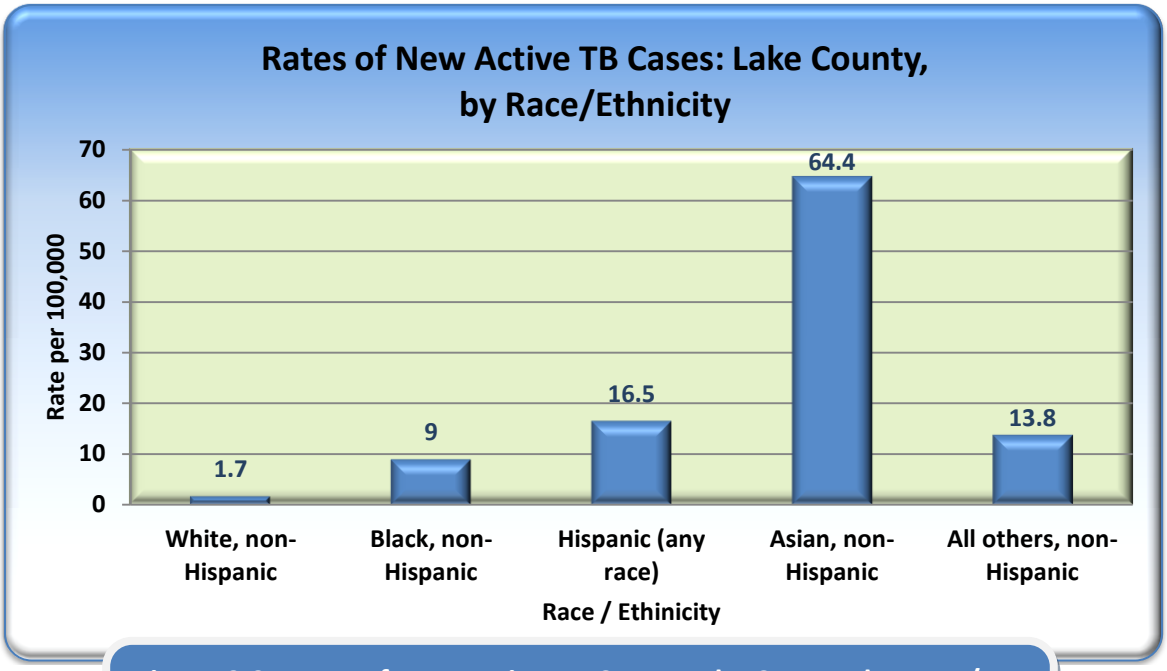


Figure 9.9 Rates of New Active TB Cases: Lake County, by Race/ Ethnicity (2007-2010, Cumulative)
Source: IDPH (2007-2010).

Age-specific rates (per 100,000 of corresponding age population) were the highest in people over 65+ years followed by people of 25-44 years of age (see Figure 9.10).

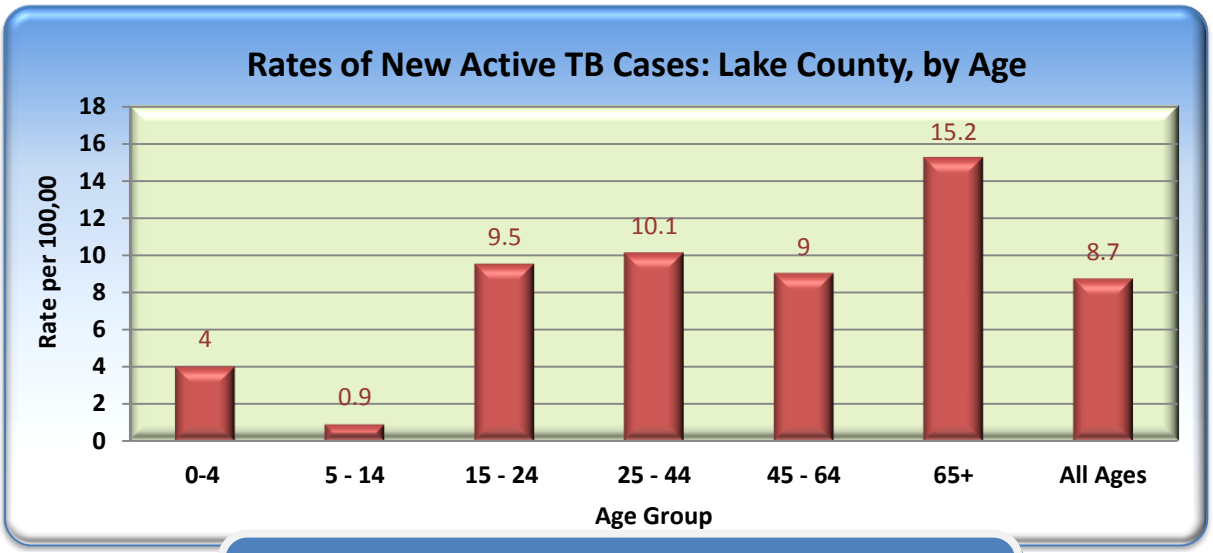


Figure 9.10 Rates of New Active TB Cases: Lake County, by Age (2007-2010, Cumulative)
Source: IDPH (2007-2010).

Foreign borne cases accounted for 46 out of 62 cases, which is 74%. Most foreign borne cases were from Mexico, India and Philippines (see Figure 9.11).

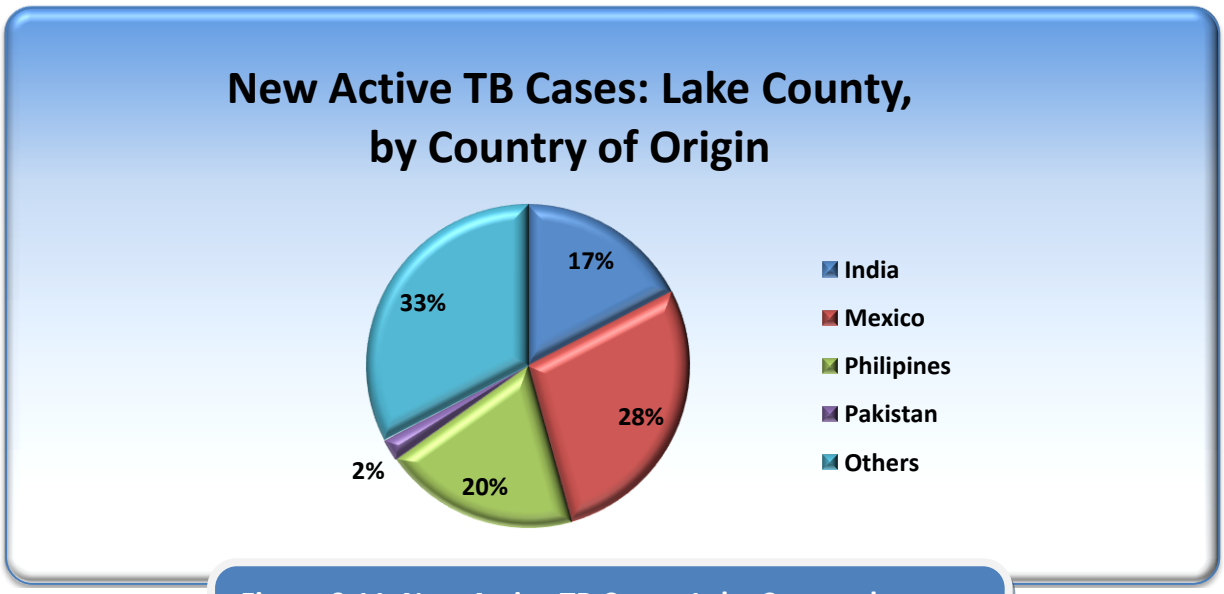


Figure 9.11 New Active TB Cases: Lake County, by Country of Origin (2007-2010, Cumulative)
Source: IDPH (2007-2010).

Consistent with the Centers for Diseases Control and Prevention (CDC) priorities, the LCHD/CHC focuses its prevention strategies in the following way: prevent new cases and find and treat all persons with TB; educate and focus on reducing TB in foreign-born persons residing in, or traveling to Lake County; reduce TB in racial and ethnic minority populations in Lake County; reduce impact of multidrug-resistant and extensively drug-resistant TB; and reducing HIV-associated TB. This is being accomplished primarily through targeted testing of high risk population groups, comprehensive treatment of cases, and public education.

Section X: Mortality Rates and Stratified Incidence Rates

Definitions

Crude Mortality Rate is the total number of deaths to residents in a specified geographic area (country, state, county, etc.) divided by the total population for the same geographic area (for a specified time period, usually a calendar year) and multiplied by 100,000. Incidence rates are the number of new cases per population in a given time period. In statistical terms, stratification means the division of a population into subpopulations on the basis of specified criteria such as age, gender, or race/ethnicity.

Overview

Historically, mortality data, compiled from death certificates, was the most available source of health indicator data. Mortality data is comparatively uniform and reliable. It can be calculated from the national level down to the county or community level. The calculation of mortality rates by cause is a valuable indicator for

comparing health status issues by geography, race/ethnicity, and sex. It has been particularly useful in making comparisons between countries and making inferences in the capability of health care services and changes in the quality of services provided.

Mortality is not a very sensitive indicator of health, however. A person may have more than one potentially life threatening condition, or have several complications from an underlying disease process, but succumb to congestive heart failure rather than renal failure that may both be complications of diabetes. It is also possible that a person with cancer dies in an accident. Using mortality indicators to track changes or improvements in health status requires a long time horizon.

Data that indicates newly diagnosed cases of chronic conditions also allows comparisons by race/ethnicity, sex, and geography. It is also an indicator that is more useful in assessing changes in trends and the reduction of the burden of a chronic condition. Cancer is the one chronic condition that is tracked by each state through a reporting system of all newly diagnosed cases of cancer. Tumor registry data highlights differences or disparities between cancer sites by sex and by age/ethnicity.

Table 10.1 Disease-Specific Causes of Death: Lake County, Mortality Rates per 100,000 population (2003-2007)

Cause of Death	Total Deaths	5-Year Cumulative Mortality Rate	Average Annual Mortality Rate
All Cancers	5026	774.7	154.9
Heart Disease	4355	671.2	134.2
Dementia, including Alzheimer's	1093	168.5	33.7
Cerebrovascular Disease	1083	166.9	33.4
Chronic Lower Respiratory Disease	894	137.8	27.6
Unintentional Injuries	840	129.5	25.9
Diabetes	606	93.4	18.7
Influenza/Pneumonia	450	69.4	13.9
Kidney Disease	417	64.3	12.9
Septicemia	324	49.9	10.0
Suicide	272	41.9	8.4
Chronic Liver Disease	126	19.4	3.9
Homicide	88	13.6	2.7

Source: IDPH Vital Statistics (2003-2007); US Census American Community Survey (2005).

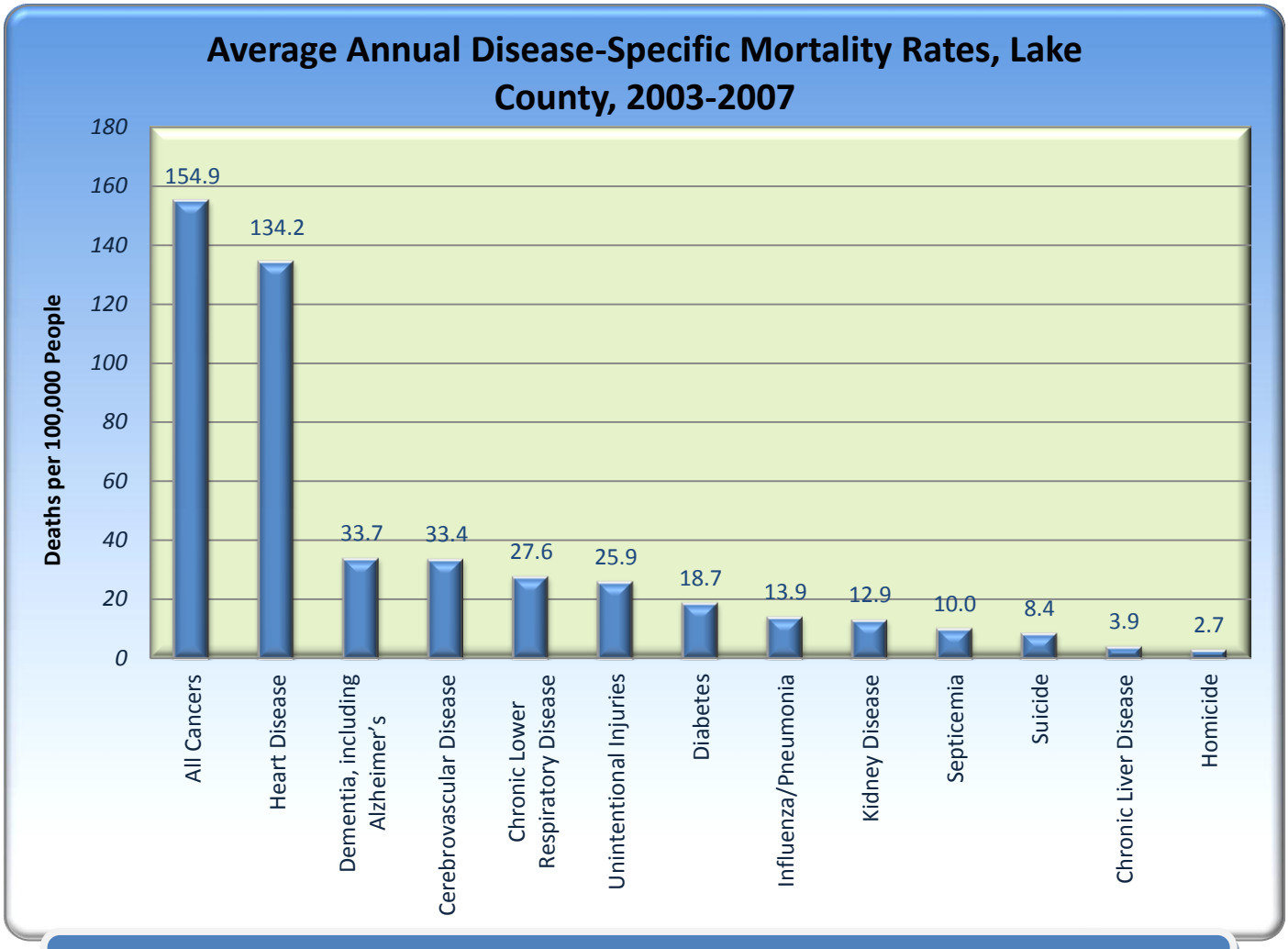
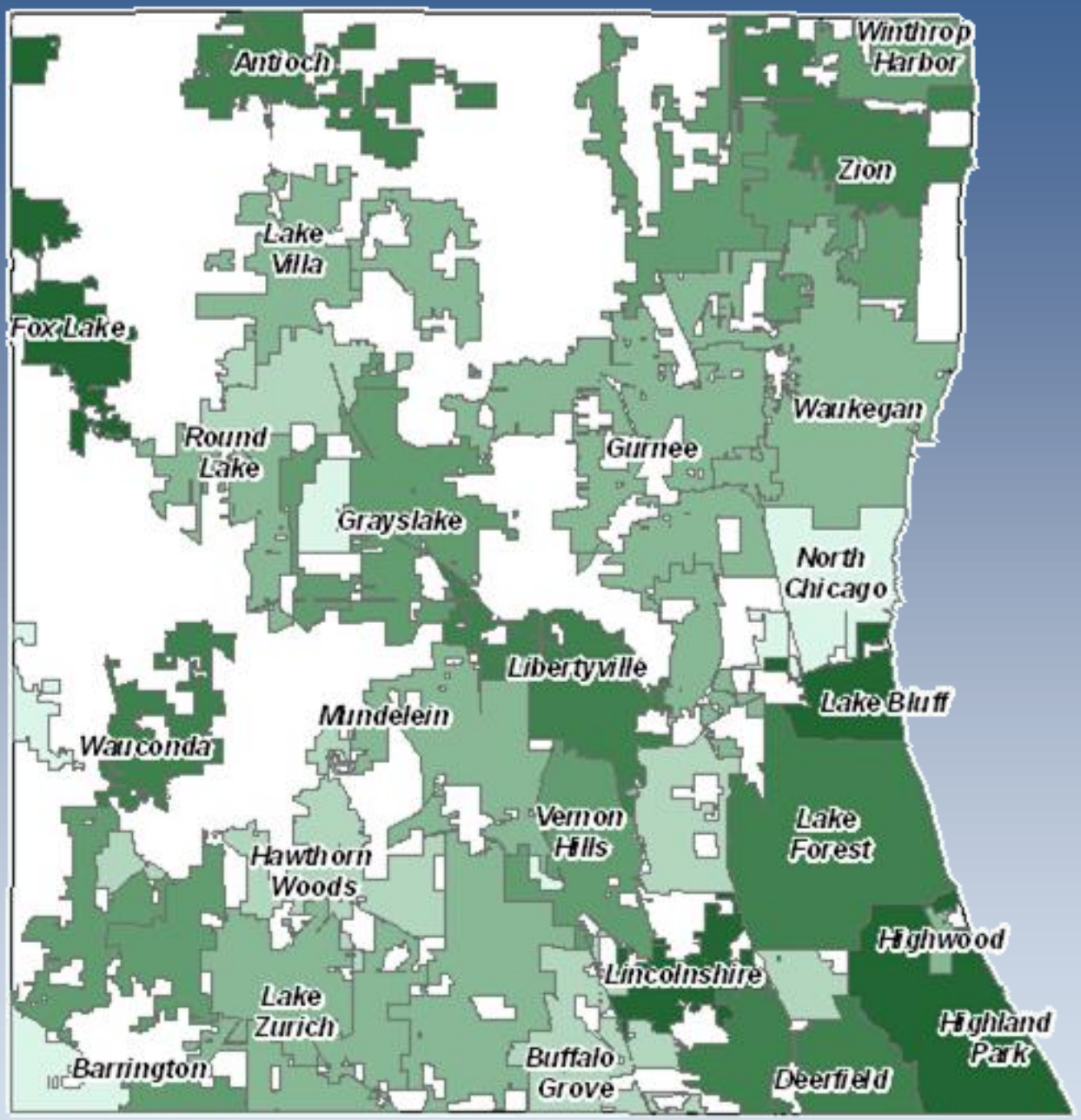


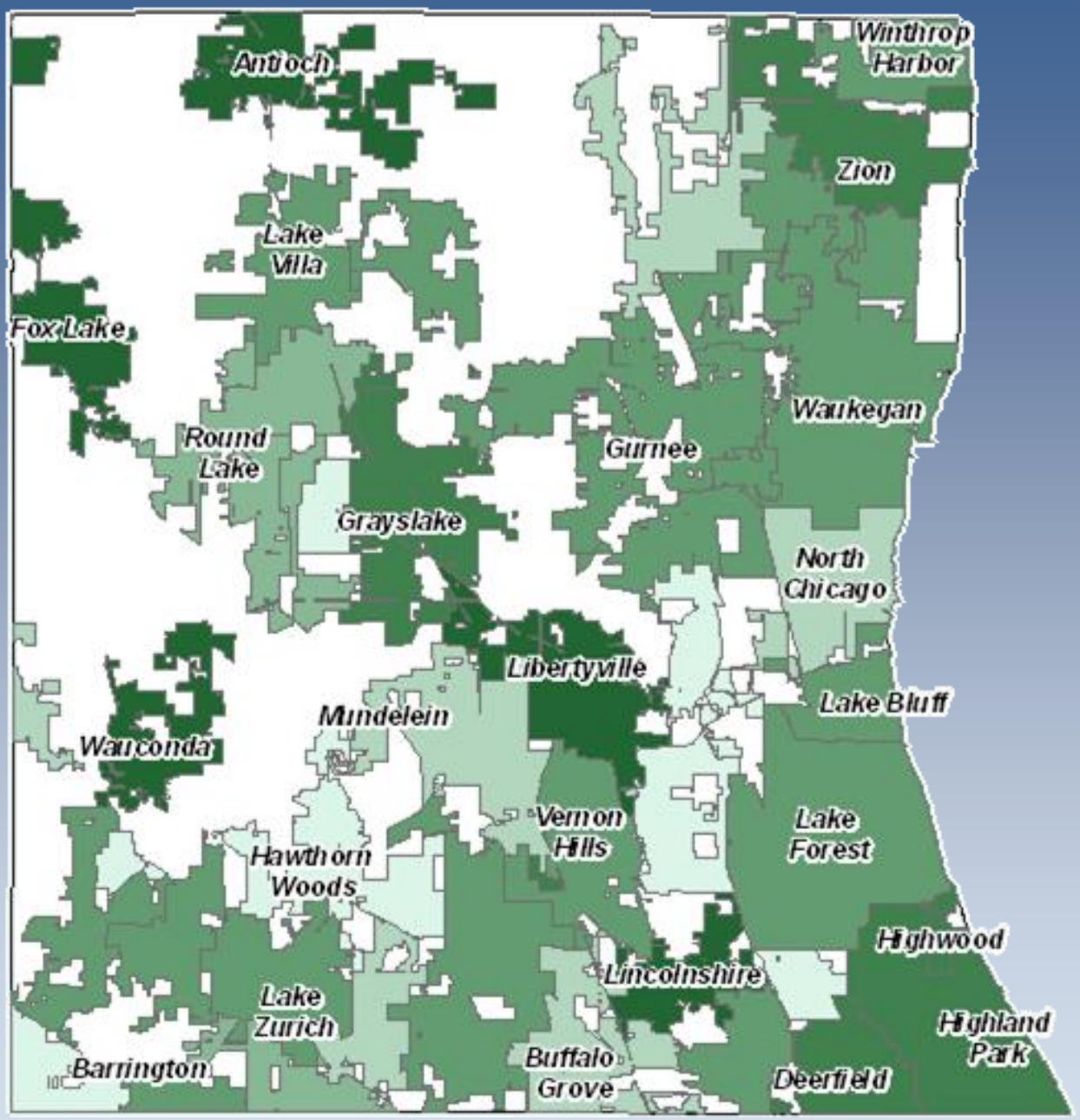
Figure 10.1 Average Annual Disease-Specific Mortality Rates, Lake County, 2003-2007
Source: IDPH Vital Statistics (2003-2007), US Census American Community Survey (2005).

Map 10.1 Average Annual Cancer Mortality Rate, per 100,000 People, by Municipality (2003-2007)



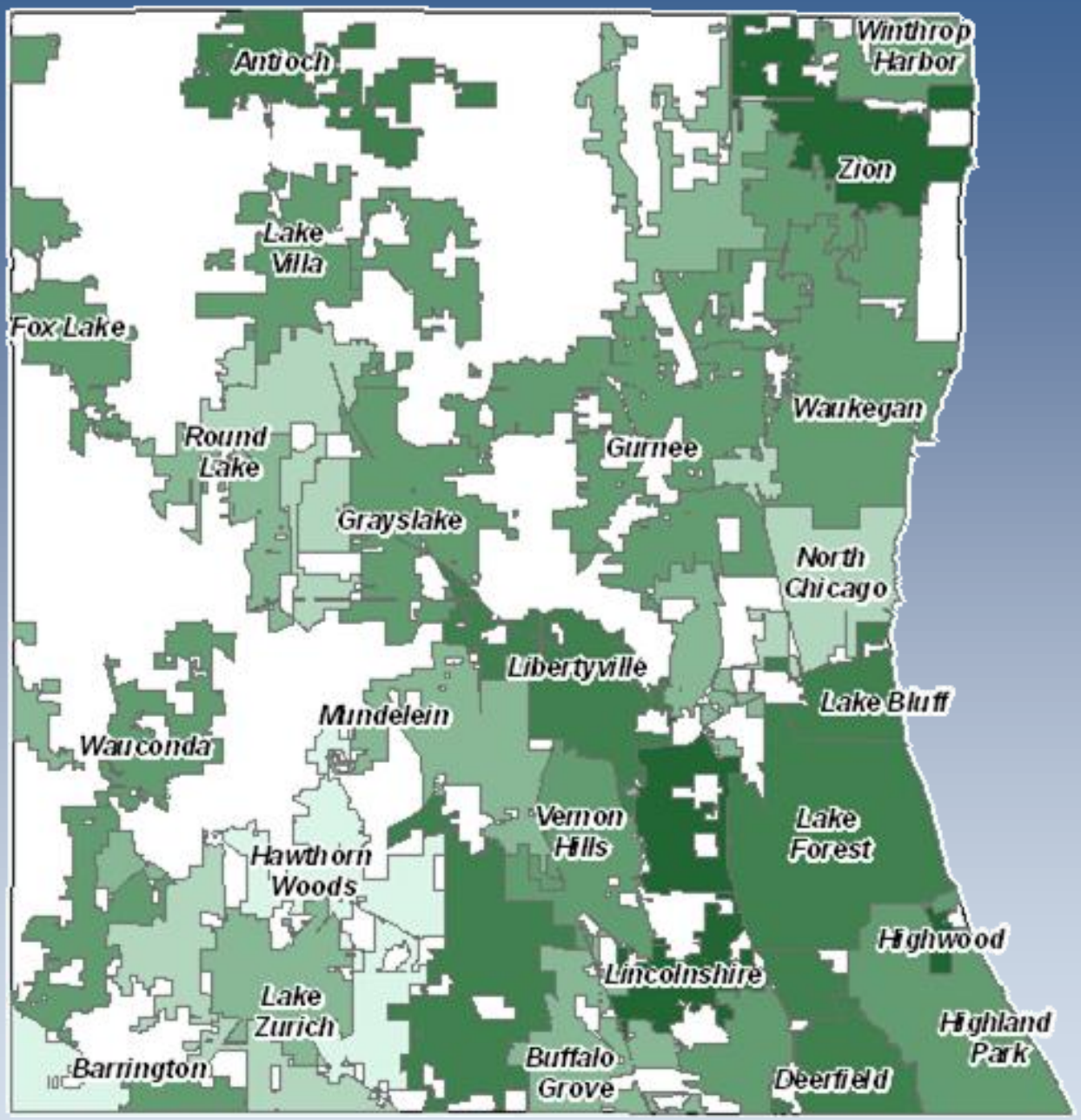
Source: IDPH Vital Statistics (2003-2007); US Census American Community Survey (2005).

Map 10.2 Average Annual Heart Disease Mortality Rate, per 100,000 People, by Municipality (2003-2007)



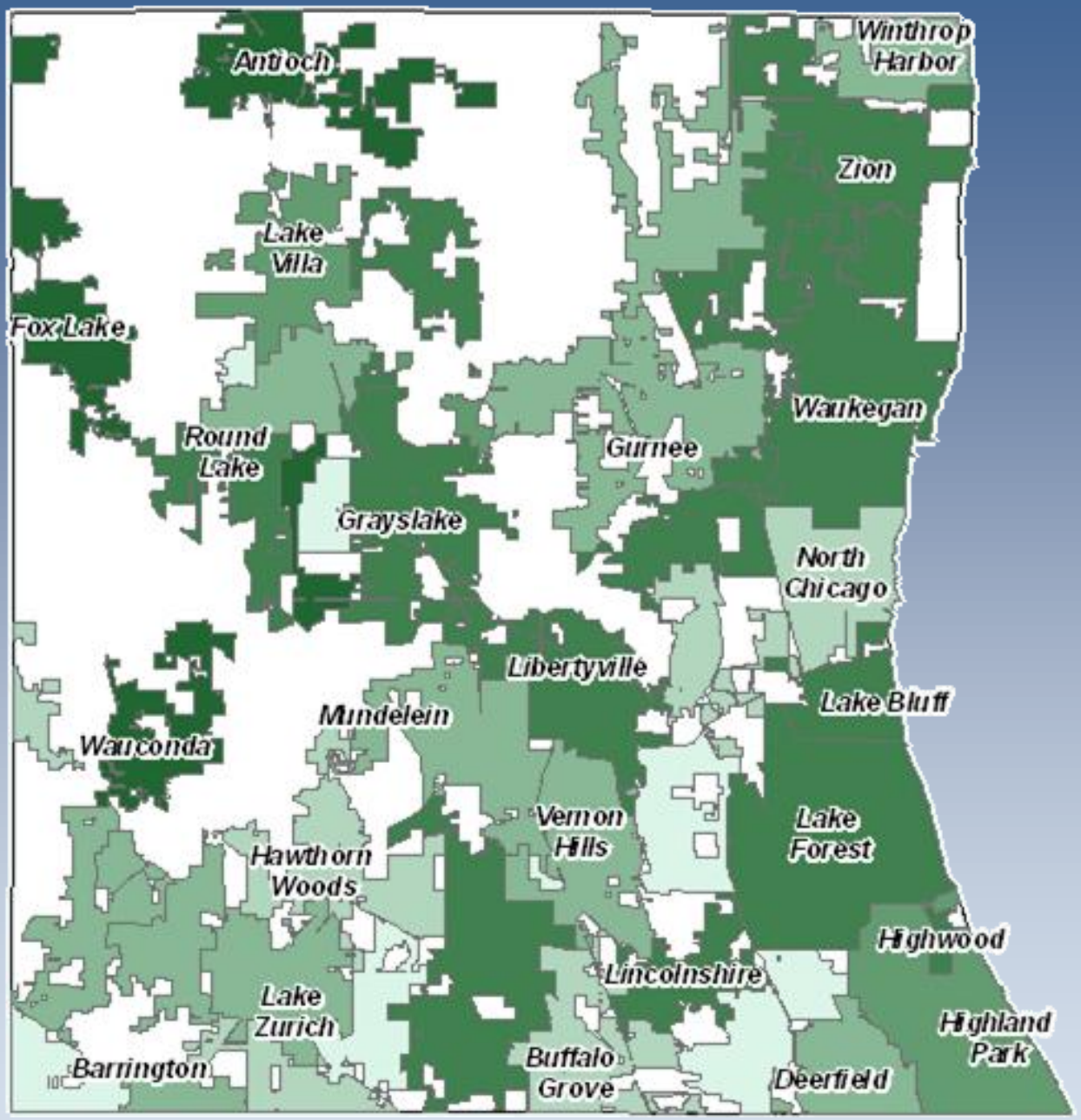
Source: IDPH Vital Statistics (2003-2007); US Census American Community Survey (2005).

Map 10.3 Average Annual Cerebrovascular Disease Mortality Rate, per 100,000 People, by Municipality (2003-2007)



Source: IDPH Vital Statistics (2003-2007); US Census American Community Survey (2005).

Map 10.4 Average Annual Chronic Lower Respiratory Disease Mortality Rate, per 100,000 People, by Municipality (2003-2007)

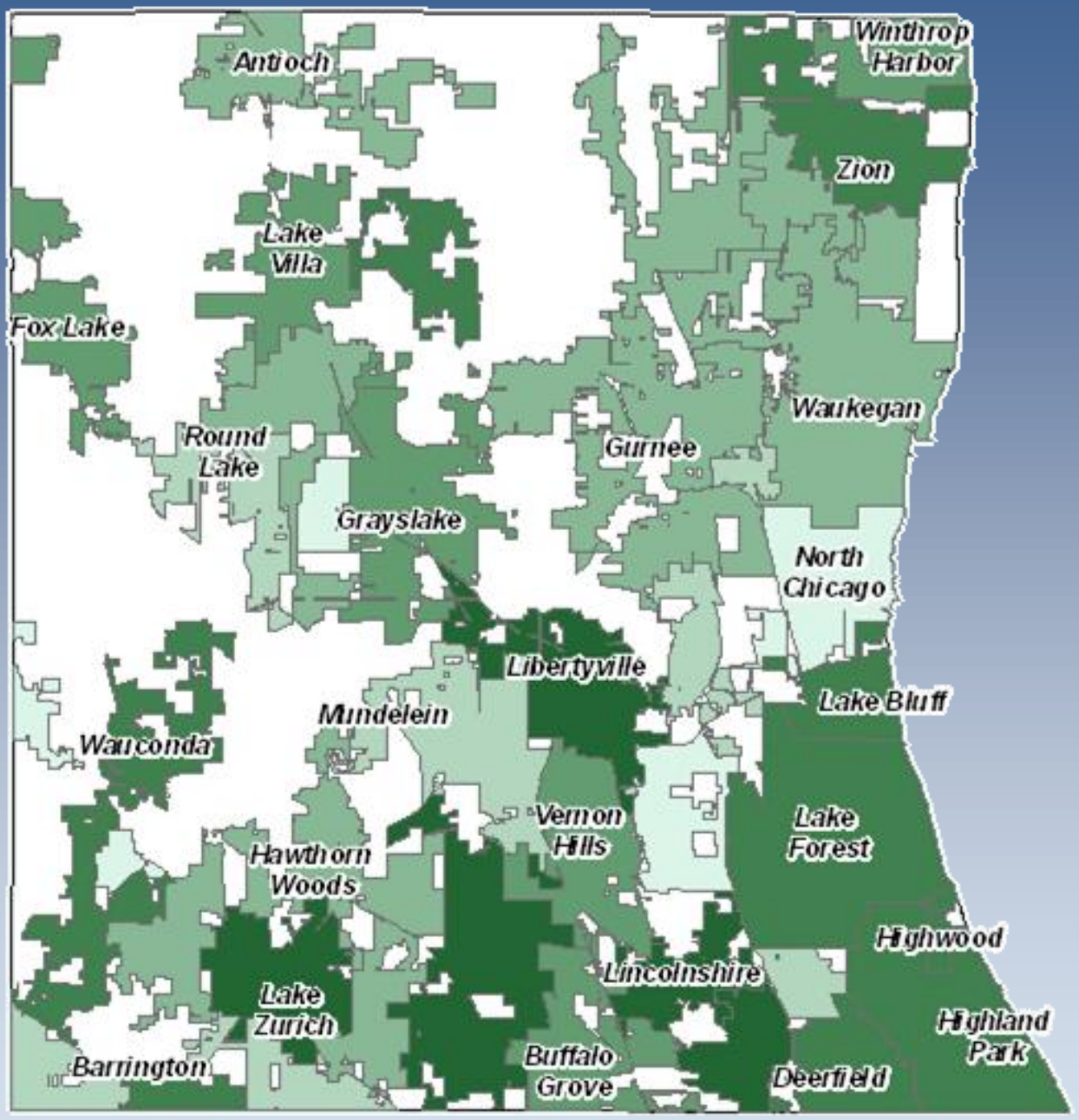


Average Annual Chronic Lower Respiratory Disease Mortality Rate (per 100,000 people)

< 10.0	21.1 - 25.0
10.0 - 15.0	25.1 - 40.0
15.1 - 20.0	> 40.0

Source: IDPH Vital Statistics (2003-2007); US Census American Community Survey (2005).

Map 10.5 Average Annual Dementia, including Alzheimer's Mortality Rate, per 100,000 People, by Municipality (2003-2007)



Average Annual Dementia, including Alzheimer's Mortality Rate (per 100,000 people)

< 8.0	25.1 - 35.0
8.1 - 15.0	35.1 - 60.0
15.1 - 25.0	> 60.0

Source: IDPH Vital Statistics (2003-2007); US Census American Community Survey (2005).

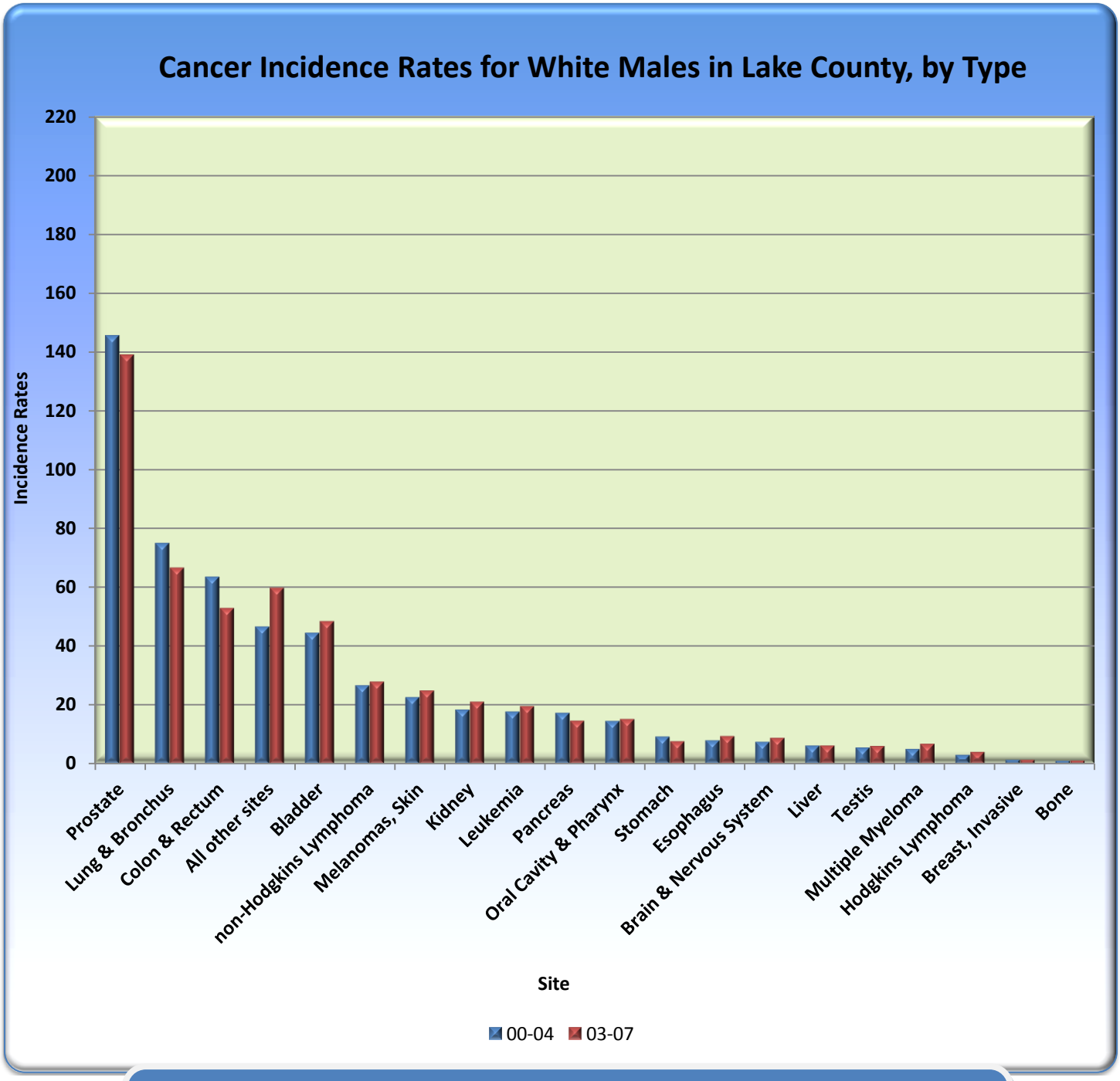


Figure 10.2 Cancer Incidence Rates for White Males in Lake County, by Type (2000-2004 and 2003-2007)

Source: IDPH Tumor Registry (2000-2004; 2003-2007).

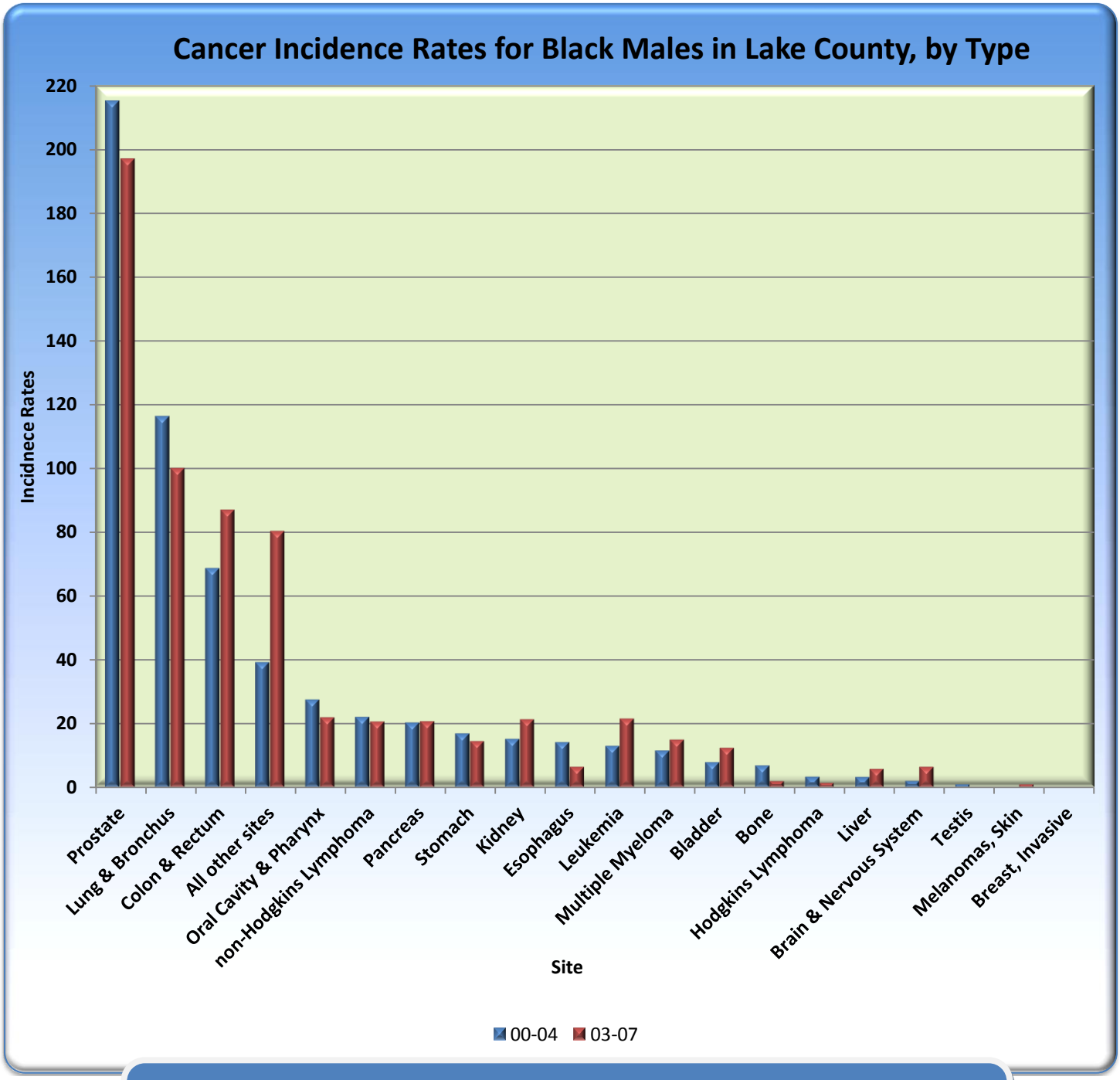


Figure 10.3 Cancer Incidence Rates for Black Males in Lake County, by Type (2000-2004 and 2003-2007)

Source: IDPH Tumor Registry (2000-2004; 2003-2007).

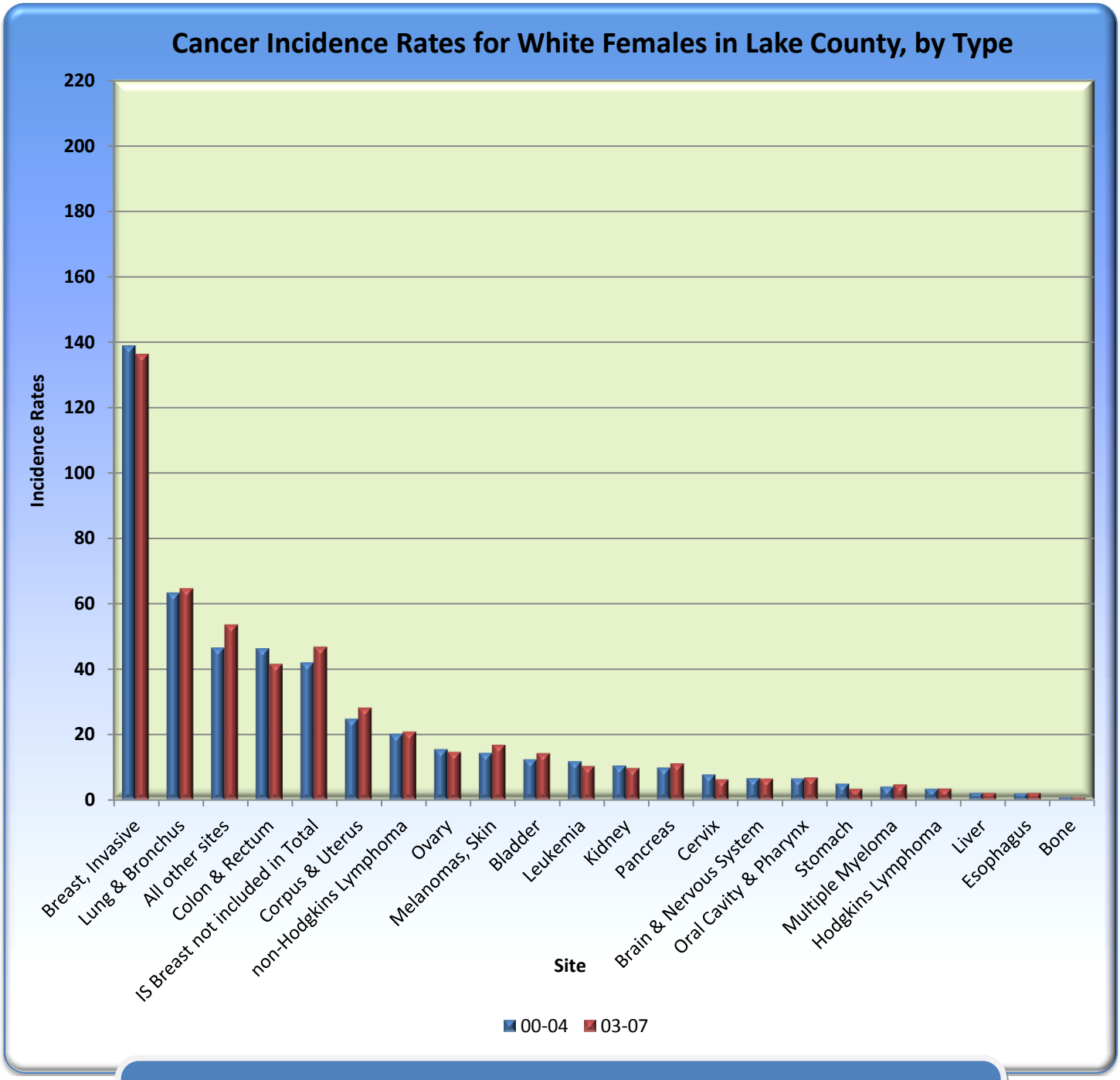


Figure 10.4 Cancer Incidence Rates for White Females in Lake County, by Type (2000-2004 and 2003-2007)

Source: IDPH Tumor Registry (2000-2004; 2003-2007).

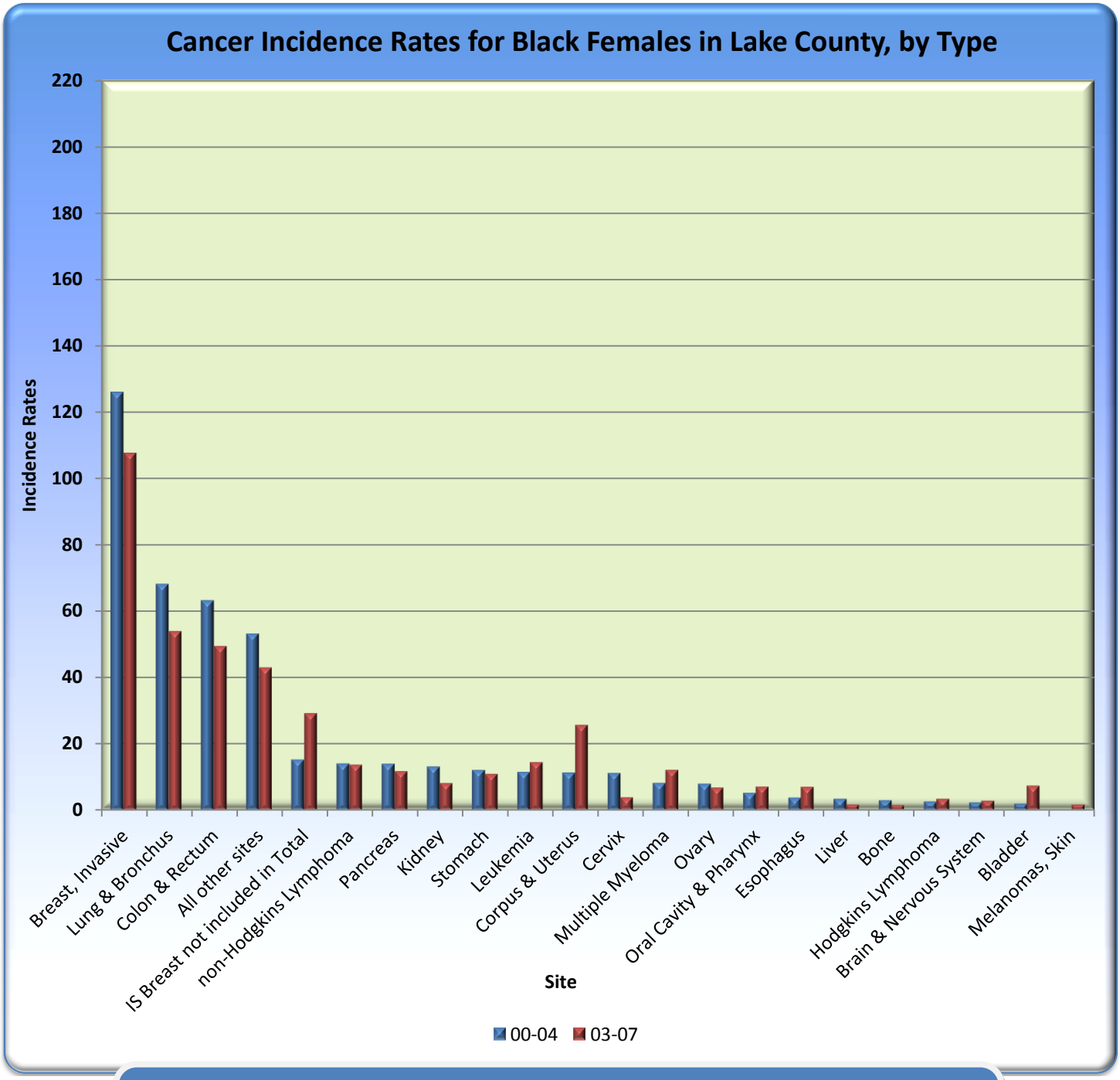


Figure 10.5 Cancer Incidence Rates for Black Females in Lake County, by Type (2000-2004 and 2003-2007)

Source: IDPH Tumor Registry (2000-2004; 2003-2007).

Section XI: Age-Stratified Hospital/ER Admissions and Other Local Data

Hospital admissions data that can be stratified by age, sex, race/ethnicity, or community provides a more detailed picture of variation in health status and may suggest how interventions should be directed or targeted. This section of the Lake County Community Health Status Assessment summarizes information from several sources and it is presented for ten age categories. The information summarized includes:

1. US Census Bureau Data, population estimates for each age category
2. Hospital use data
    a. Hospital utilization
    b. Admissions for Ambulatory Care Sensitive Conditions*
    c. Admissions by Major Diagnostic Category**
3. Age specific preventive service recommendations, Healthy People 2020 indicators, or local programmatic outcome data

*Ambulatory Care Sensitive Conditions (ACSC) are hospitalizations for diagnoses that should be avoidable if patients had better access to care, were being treated according to evidence-based guidelines, or were better self-managers of their condition

**Diagnostic codes are grouped into 1 of 467 Diagnosis Related Groups (DRG's). DRGs are mapped or grouped into 1 of 25 mutually exclusive Major Diagnostic Categories (MDC's). The diagnoses in each MDC correspond to a single organ system, and in general, associated with a particular medical specialty. Beginning with the high level MDC it is possible to drill down into the component DRG's and the diagnoses.

Not surprisingly, children less than 5 years old have low utilization of inpatient hospitalization. The most frequent Major Diagnostic Category (MDC) for hospitalization is Diseases and Disorders of the Respiratory System. The most common Ambulatory Care Sensitive Conditions (ACSC) that result in a hospital admission are asthma and dehydration.

Children 5-14 also have low rates of hospital use and the most frequent ACSC that result in a hospital admission are asthma and dehydration. Mental Health Diseases and Disorders (28.8%) become the most frequent MDC that require hospitalization followed by Diseases and Disorders of the Respiratory System.

From ages 15 to 34 Pregnancy and Childbirth is the most common MDC requiring hospitalization followed by Mental Health Diseases and Disorders. Asthma and dehydration are the most common ACSC, but are a declining proportion of all hospitalized patients. The US Preventive Task Force recommends that all adults begin regular blood pressure screening at age 18. Pregnancy and childbirth are the most frequent reasons for hospitalization among people 35-44 followed by Disease and Disorders of the Digestive System. Recommended preventive services are for lipid disorders among men age 35 and older.

The most common MDC requiring hospitalization for all patients age 45 and older are Disease and Disorders of the Circulatory System and the most common ACSC resulting in hospitalization is Chronic Obstructive Pulmonary Disease (COPD). Regular screening for cervical cancer, breast cancer, and colorectal cancer are all recommended by the US Preventive Services Task Force.

Age Group 1: 0-4 Years of Age

- 2010 Population: 47,115
- Hospitalization Data: In 2008-2009, 1710 patients used 4,765 patient days of care with an Average Length of Stay (ALOS) of 2.8 and use of 47 patient days of care per 1,000 population.
- Ambulatory Care Sensitive Conditions (ACSC): 461 patients (27%) were admitted for ACSC, 243 (14.2%) for asthma and 162 (9.5%) for dehydration, the two most frequent diagnoses for ACSC admissions.

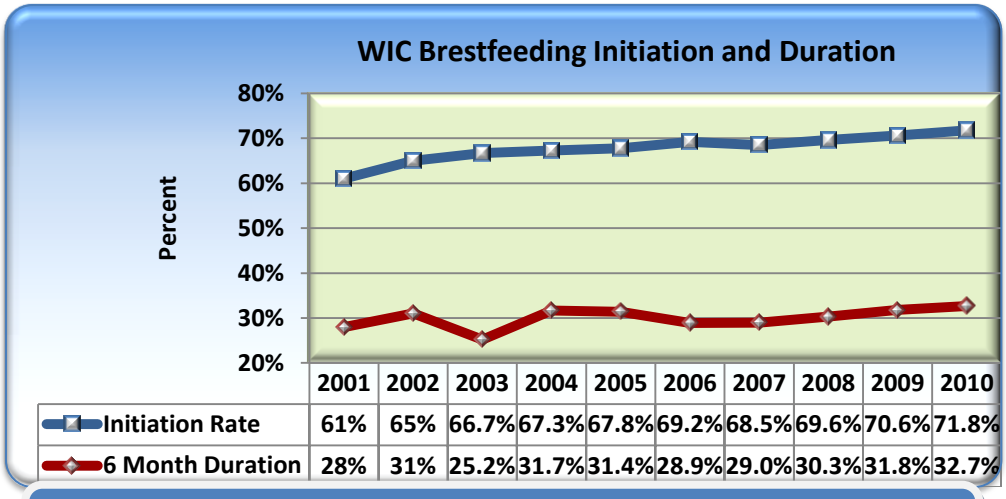
Table 11.1 Admissions by Major Diagnostic Category: Ages 0-4 (2008-2009)

Major Diagnostic Category	Frequency	Percent
Diseases & Disorders of the Respiratory System	670	39.2%
Diseases & Disorders of the Endocrine, Nutritional, and Metabolic System	191	11.2%
Diseases & Disorders of the Digestive System	145	8.5%
Diseases & Disorders of the Ear, Nose or Throat	134	7.8%
Diseases & Disorders of the Nervous System	110	6.4%

Source: Illinois Department of Public Health Illinois Survey of Hospital Discharges (2008-2009).

Local Data: (WIC, Planned Care, BRFSS)

The number of women who deliver babies in Lake County and attempt to breastfeed their baby and maintain breastfeeding according to the American Academy of Pediatrics recommendations is not known. The Lake County "Women, Infants, and Children" (WIC) program provides counseling and supplemental nutrition to pregnant women or women with young children who qualify. In 2009 they had 67,233 client visits.



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Initiation Rate	61%	65%	66.7%	67.3%	67.8%	69.2%	68.5%	69.6%	70.6%	71.8%
6 Month Duration	28%	31%	25.2%	31.7%	31.4%	28.9%	29.0%	30.3%	31.8%	32.7%

Figure 11.1 WIC Breastfeeding Initiation and Duration (2001-2010)
Source: LCHD/CHC (2001-2010).

In the ten years from 2001-2010 the percent of women in their program who initiated breastfeeding increased by 10%, from 61% to 71.8%. The percent of women who are able to sustain breastfeeding for six months increase from 28% to 32.7% (see Figure 11.1).

Lake County data on childhood obesity that is accurate and current is not generally available. Data on WIC children ages 2-5 indicate that about 25% are at risk of becoming overweight (BMI in the 85-95 percentile) and about 25% are overweight (BMI $\geq$ 95%).

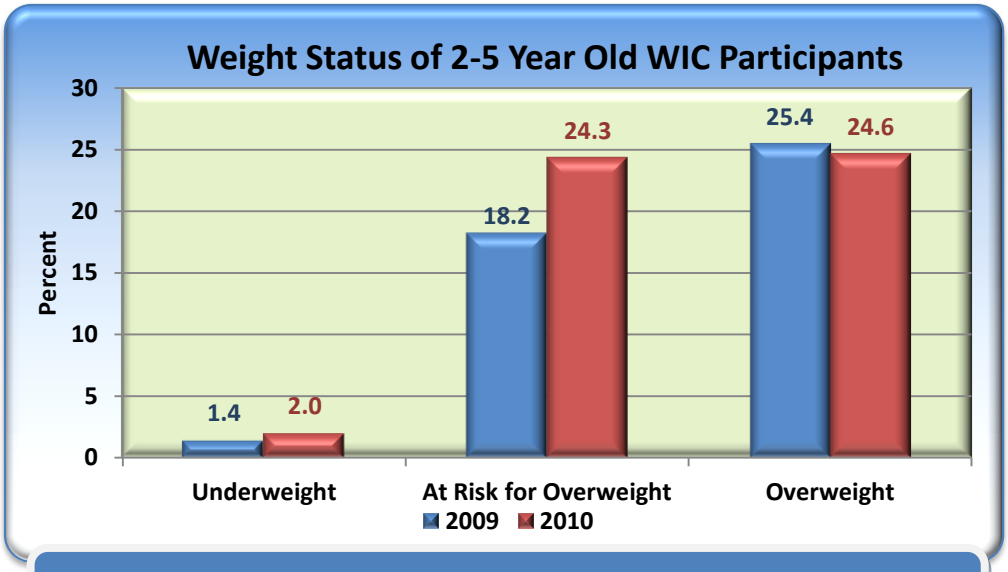


Figure 11.2 Weight Status of 2-5 Year Old WIC Participants
Source: LCHD/CHC (January-June 2009; April-September 2010).

The Illinois Department of Public Health (IDPH) compiles an Illinois Hospital Report Card and Consumer Guide to Health Care. The report card includes several measures of hospital performance, including the percent of infants that are breastfed sometime between delivery and discharge. This data is compiled from Birth Certificate information from January 2010-September 2010. In explaining the importance of the measure IDPH states that, "There is no other single action by which a mother can so impact the present and future health of her baby."

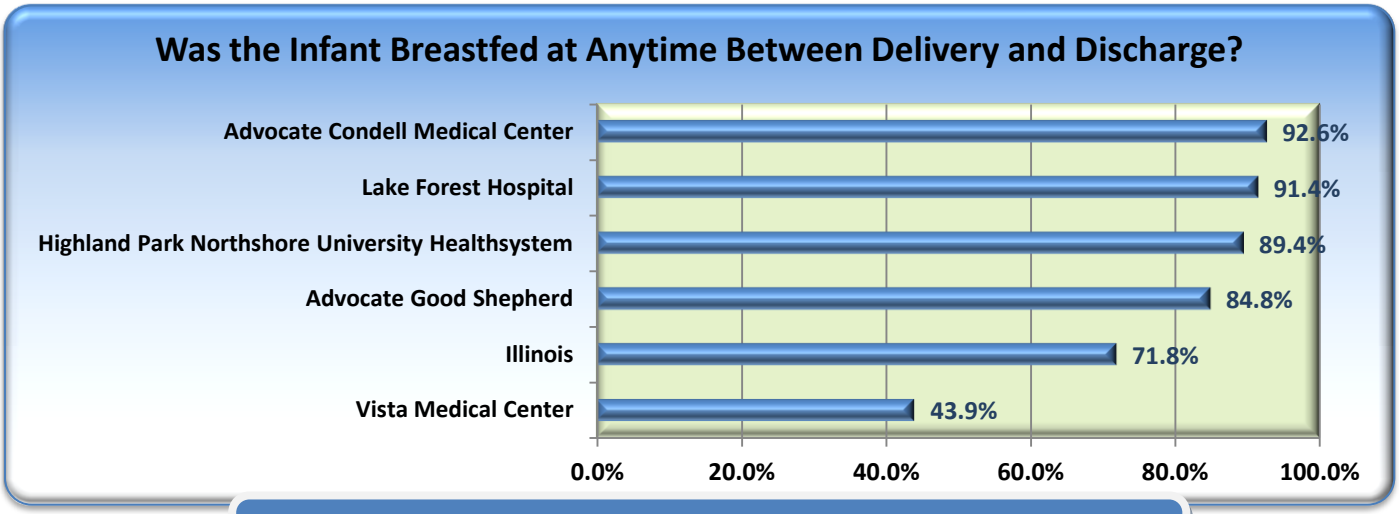


Figure 11.3 Percentage of Breastfeeding Attempts, by Hospital
Source: IDPH Vital Statistics (2010).

Age Group 2: 5-14 Years of Age

- 2010 Population: 110,334
- Hospitalization Data: 2989 patients in 2008-2009 used 15,680 patient days of care with an Average Length of Stay (ALOS) of 5.2 and use of 71 patient days of care per 1,000 population.
- Ambulatory Care Sensitive Conditions: 386 patients (13%) were admitted for ACSC, 211 (7.1%) for asthma and 69 (2.3%) for dehydration, the two most frequent diagnoses for ACSC admissions.

Table 11.2 Admissions by Major Diagnostic Category: Ages 5-14 (2008-2009)

Major Diagnostic Category	Frequency	Percent
Mental Health Diseases & Disorders	862	28.8%
Diseases & Disorders of the Respiratory System	468	15.6%
Diseases & Disorders of the Digestive System	401	13.4%
Diseases & Disorders of the Musculoskeletal System	197	6.6%
Diseases & Disorders of the Nervous System	175	5.9%

Source: Illinois Department of Public Health Illinois Survey of Hospital Discharges (2008-2009).

Age Group 3: 15-24 Years of Age

- 2010 Population: 98,378
- Hospitalization Data: 11,405 patients in 2008-2009 used 44,628 patient days of care with an Average Length of Stay (ALOS) of 3.9 and use of 212 patient days of care per 1,000 population.
- Ambulatory Care Sensitive Conditions: 207 patients (2%) were admitted for ACSC, 90 (0.8%) for asthma and 45 (0.4%) for dehydration, the two most frequent diagnoses for ACSC admissions.

Table 11.3 Admissions by Major Diagnostic Category: Ages 15-24 (2008-2009)

Major Diagnostic Category	Frequency	Percent
Pregnancy & Childbirth	5,100	44.7%
Mental Health Diseases & Disorders	2,473	21.7%
Diseases & Disorders of the Digestive System	632	5.5%
Diseases & Disorders of the Nervous System	386	3.4%
Diseases & Disorders of the Respiratory System	336	2.9%

Source: Illinois Department of Public Health Illinois Survey of Hospital Discharges (2008-2009).

Age Group 4: 25-34 Years of Age

- 2010 Population: 81,060
- Hospitalization Data: 16,806 patients in 2008-2009 used 53,355 patient days of care with an Average Length of Stay (ALOS) of 3.2 and use of 218 patient days of care per 1,000 population.
- Ambulatory Care Sensitive Conditions: 207 patients (1%) were admitted for ACSC, 85 (0.5%) for asthma and 31 (0.2%) for dehydration, the two most frequent diagnoses for ACSC admissions.

Table 11.4 Admissions by Major Diagnostic Category: Ages 25-34 (2008-2009)

Major Diagnostic Category	Frequency	Percent
Pregnancy & Childbirth	10,717	63.8%
Mental Health Diseases & Disorders	1,119	6.7%
Diseases & Disorders of the Digestive System	881	5.2%
Diseases & Disorders of the Nervous System	508	3.0%
Diseases & Disorders of the Musculoskeletal System	436	2.6%

Source: Illinois Department of Public Health Illinois Survey of Hospital Discharges (2008-2009).

Local Data: (WIC, Planned Care, BRFSS)

Observations about obesity trends among adults are usually based on periodic methods of estimation, such as the telephonic survey conducted for the BRFSS. The WIC program actually collects BMI data on its clients. Although the 7-8,000 adult clients per year are a subset of adults in the county, the estimated percent of obese adults from the BRFSS were compared to the same years of actual measurement of adult clients in the WIC program. The percent of adults that are considered obese are similar for all three time periods for both sources of data.

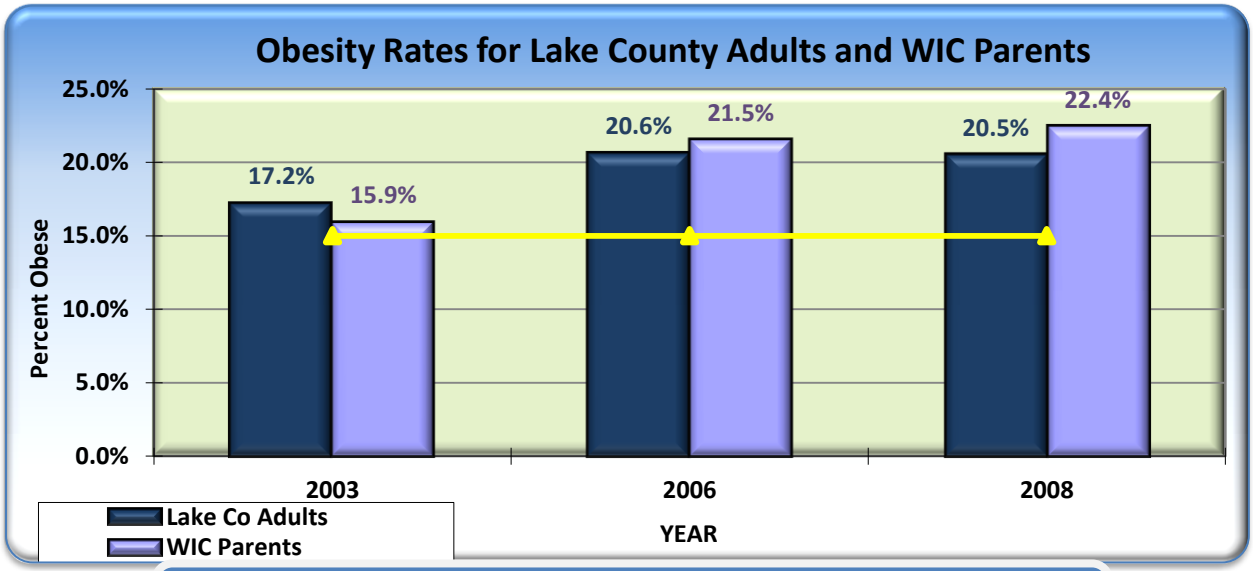


Figure 11.4 Obesity Rates for Lake County Adults and WIC Parents
Source: Behavior Risk Factor Surveillance Survey and LCHD (2003-2008).

Age Group 5: 35-44 Years of Age

- 2010 Population: 99,747
- Hospitalization Data: 14,117 patients in 2008-2009 used 50,843 patient days of care with an Average Length of Stay (ALOS) of 3.6 and use of 116 patient days of care per 1,000 population.
- Ambulatory Care Sensitive Conditions: 445 patients (3.2%) were admitted for ACSC, 168 (1.2%) for asthma and 85 (0.6%) for dehydration, the two most frequent diagnoses for ACSC admissions.

Table 11.5 Admissions by Major Diagnostic Category: Ages 35-44 (2008-2009)

Major Diagnostic Category	Frequency	Percent
Pregnancy & Childbirth	3,734	26.5%
Diseases & Disorders of the Digestive System	1,388	9.8%
Mental Health Diseases & Disorders	1,196	8.5%
Diseases & Disorders of the Circulatory System	1,046	7.4%
Diseases & Disorders of the Musculoskeletal System	1,004	7.1%

Source: Illinois Department of Public Health Illinois Survey of Hospital Discharges (2008-2009).

Local Data: (WIC, Planned Care, BRFSS)

The Miliken Institute report, *An Unhealthy America: The Economic Burden of Chronic Disease* suggests several strategies that will reduce the burden of chronic disease and improve quality of life. Among those recommendations are:

- Providing preventive care
- Reducing the disparities in the burden of chronic disease that falls disproportionately on racial minorities and low-income populations

The Lake County Health Department/Community Health Center has been involved in initiatives to accomplish those recommendations by increasing the preventive care screening services provided to low income, minority patients. The data from this experience for the most recent four year period is provided below (see Figure 11.5).

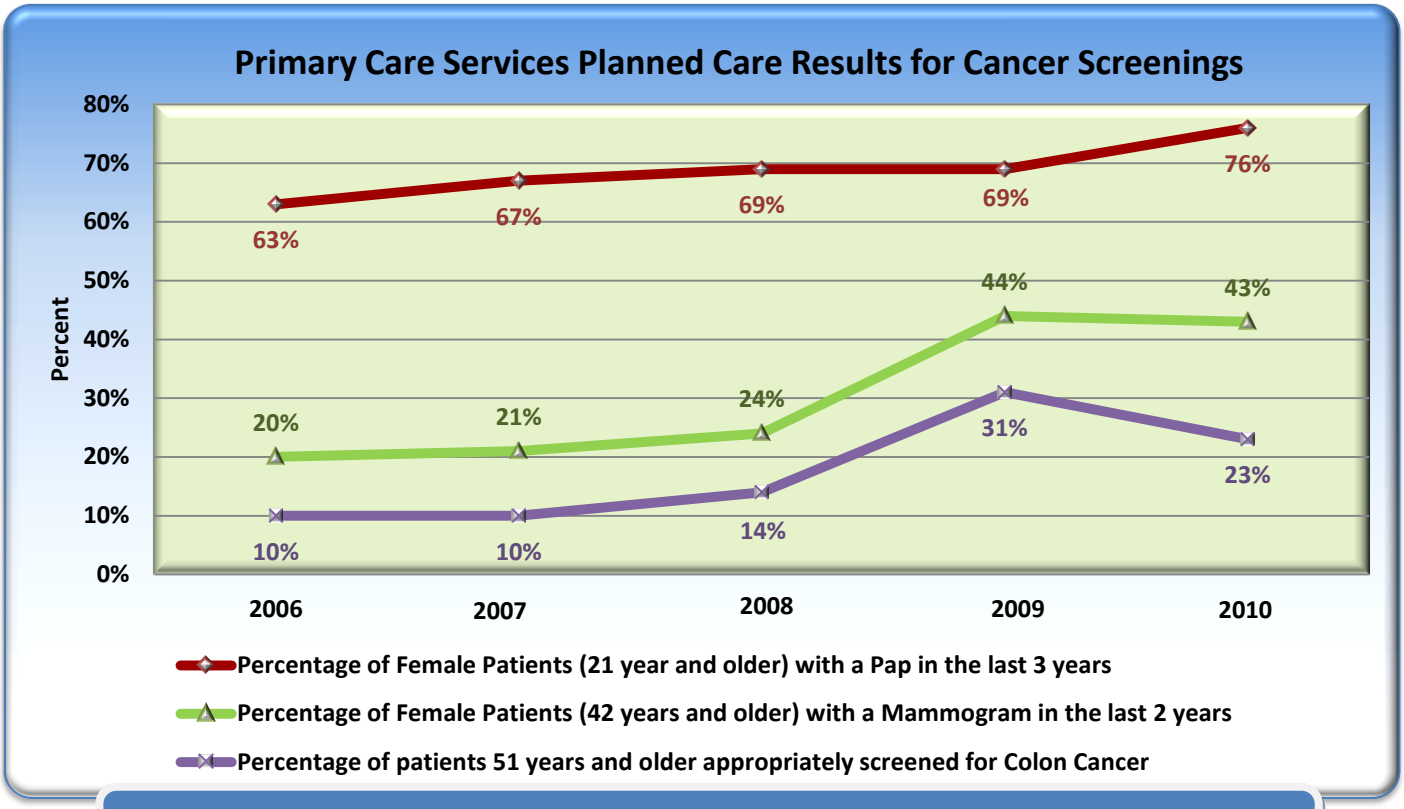


Figure 11.5 LCHD Primary Care Services, Percentages for Cancer Screenings (2006-2010)
Source: Lake County Health Department (2006-2010).

Age Group 6: 45-54 Years of Age

- 2010 Population: 113,983
- Hospitalization Data: 17,513patients in 2008-2009 used 76,069 patient days of care with an Average Length of Stay (ALOS) of 4.3 and use of 329 patient days of care per 1,000 population.
- Ambulatory Care Sensitive Conditions: 860 patients (4.9%) were admitted for ACSC, 229 (1.3%) for asthma and 202 (1.2%) Chronic Obstructive Pulmonary Disease (COPD), the two most frequent diagnoses for ACSC admissions. Dehydration is the third most frequent ACSC with 137 (0.8%).

Table 11.6 Admissions by Major Diagnostic Category: Ages 45-54 (2008-2009)

Major Diagnostic Category	Frequency	Percent
Diseases & Disorders of the Circulatory System	2,538	14.5%
Diseases & Disorders of the Digestive System	2,292	13.1%
Diseases & Disorders of the Musculoskeletal System	2,103	12%
Diseases & Disorders of the Respiratory System	1,468	8.4%
Diseases & Disorders of the Nervous System	1,308	7.5%
Mental Health Diseases & Disorders	1,288	7.4%

Source: Illinois Department of Public Health Illinois Survey of Hospital Discharges (2008-2009).

Age Group 7: 55-64 Years of Age

- 2010 Population: 79,752
- Hospitalization Data: 17,653patients in 2008-2009 used 85,559 patient days of care with an Average Length of Stay (ALOS) of 4.9 and use of 549 patient days of care per 1,000 population.
- Ambulatory Care Sensitive Conditions: 957 patients (5.4%) were admitted for ACSC, 312 (1.8%) for Chronic Obstructive Pulmonary Disease (COPD) and 189 (1.1%)for asthma, the two most frequent diagnoses for ACSC admissions. Dehydration is the third most frequent ACSC with 167 (0.9%) admissions.

Table 11.7 Admissions by Major Diagnostic Category: Ages 55-64 (2008-2009)

Major Diagnostic Category	Frequency	Percent
Diseases & Disorders of the Circulatory System	3,438	19.5%
Diseases & Disorders of the Musculoskeletal System	2,547	14.4%
Diseases & Disorders of the Digestive System	2,063	11.7%
Diseases & Disorders of the Respiratory System	1,825	10.3%
Diseases & Disorders of the Nervous System	1,370	7.8%

Source: Illinois Department of Public Health Illinois Survey of Hospital Discharges (2008-2009).

Age Group 8: 65-74 Years of Age

- 2010 Population: 40,436
- Hospitalization Data: 17,728patients in 2008-2009 used 91,935 patient days of care with an Average Length of Stay (ALOS) of 5.2 and use of 1,149 patient days of care per 1,000 population.
- Ambulatory Care Sensitive Conditions: 1,275 patients (7.2%) were admitted for ACSC, 554 (3.1%) for Chronic Obstructive Pulmonary Disease (COPD) and 223 (1.3%) for dehydration, the two most frequent diagnoses for ACSC admissions. Urinary Tract Infections (UTIs) are the third most frequent ACSC with 175 (1.0%) admissions.

Table 11.8 Admissions by Major Diagnostic Category: Ages 65-74 (2008-2009)

Major Diagnostic Category	Frequency	Percent
Diseases & Disorders of the Circulatory System	3,687	20.8%
Diseases & Disorders of the Musculoskeletal System	2,572	14.5%
Diseases & Disorders of the Respiratory System	2,323	13.1%
Diseases & Disorders of the Digestive System	1,938	10.9%
Diseases & Disorders of the Nervous System	1,446	8.2%

Source: Illinois Department of Public Health Illinois Survey of Hospital Discharges (2008-2009).

Age Group 9: 75-84 Years of Age

- 2010 Population: 22,762
- Hospitalization Data: 19,203patients in 2008-2009 used 101,672 patient days of care with an Average Length of Stay (ALOS) of 5.3 and use of 2,118 patient days of care per 1,000 population.
- Ambulatory Care Sensitive Conditions: 1,641 patients (8.5%) were admitted for ACSC, 586 (3.1%) for Chronic Obstructive Pulmonary Disease (COPD) and 426 (2.2%) for urinary Tract Infections (UTIs), the two most frequent diagnoses for ACSC admissions. Dehydration is the third most frequent ACSC with 313 (1.6%) admissions.

Table 11.9 Admissions by Major Diagnostic Category: Ages 75-84 (2008-2009)

Major Diagnostic Category	Frequency	Percent
Diseases & Disorders of the Circulatory System	4,289	22.3%
Diseases & Disorders of the Respiratory System	2,680	14.0%
Diseases & Disorders of the Musculoskeletal System	2,430	12.7%
Diseases & Disorders of the Digestive System	2,172	11.3%
Diseases & Disorders of the Nervous System	1,713	8.9%

Source: Illinois Department of Public Health Illinois Survey of Hospital Discharges (2008-2009).

Age Group 10: 85+ Years of Age

- 2010 Population: 9,895
- Hospitalization Data: 11,745 patients in 2008-2009 used 58,701 patient days of care with an Average Length of Stay (ALOS) of 5.0 and use of 3,453 patient days of care per 1,000 population.
- Ambulatory Care Sensitive Conditions: 1,196 patients (10.2%) were admitted for ACSC, 448 (3.8%) for Urinary Tract Infections (UTIs) and 285 (2.4%) for dehydration, the two most frequent diagnoses for ACSC admissions. COPD is the third most frequent ACSC with 267 (2.3%) admissions.

Table 11.10 Admissions by Major Diagnostic Category: Ages 85+ (2008-2009)

Major Diagnostic Category	Frequency	Percent
Diseases & Disorders of the Circulatory System	2,720	23.2%
Diseases & Disorders of the Respiratory System	1,807	15.4%
Diseases & Disorders of the Musculoskeletal System	1,265	10.8%
Diseases & Disorders of the Digestive System	1,231	10.5%
Diseases & Disorders of the Nervous System	1,039	8.8%

Source: Illinois Department of Public Health Illinois Survey of Hospital Discharges (2008-2009).

Section XII: Chronic Conditions, Ambulatory Care Sensitive Conditions, and Hospital Usage Data

Overview

Each state collects electronic claims data on every patient who is a discharged from an inpatient hospital. Recently Illinois began collecting similar claims data for patients who had an Emergency Services visit or had an outpatient surgical procedure. This data is uniform, timely, and reliable. The data included in each claim includes variables such as age, gender, patient zip code, discharging hospital, source of admission, discharge status and payer. In 2009 race and ethnicity information was added. Each record also includes diagnosis and procedure codes, the Diagnostic Related Group (DRG), the Major Diagnostic Category (MDC), and other diagnostic and procedural information.

As illustrated in Section XI (age-stratified data), the data in this section allows us to look at various health issues by segmenting or stratifying our population according to several demographic variables. The data has also been used by the Lake County Health Department to identify patients admitted with a diagnosis for a chronic condition, and identify patients who have an Ambulatory Care Sensitive Condition (ACSC) that indicate a potentially avoidable hospitalization. Chronic conditions are responsible for the top five causes of mortality. Hospitalization data helps us understand what medical services people in a particular community utilize. The data also allows for additional analysis of differences by age, sex, community, race, or ethnicity. All of which may suggest interventions or remedial action to alleviate chronic conditions, reduce admissions for ACSCs, and verify disparate impact on sub-populations within the county.

- The number of Lake County residents that were hospitalized each year increased from 69,411 in 2001 to 77,545 in 2009, an 11.7% increase.
- Advocate-Condell Medical Center has been the hospital that Lake County residents primarily use.
- From 2001 to 2003 Vista Medical Center was the primary hospital used by Lake County Residents. Advocate-Condell admissions increased from 2003-2005.
- Admissions to Advocate-Condell have declined since 2005, but it continues to attract the greatest number of Lake County residents.

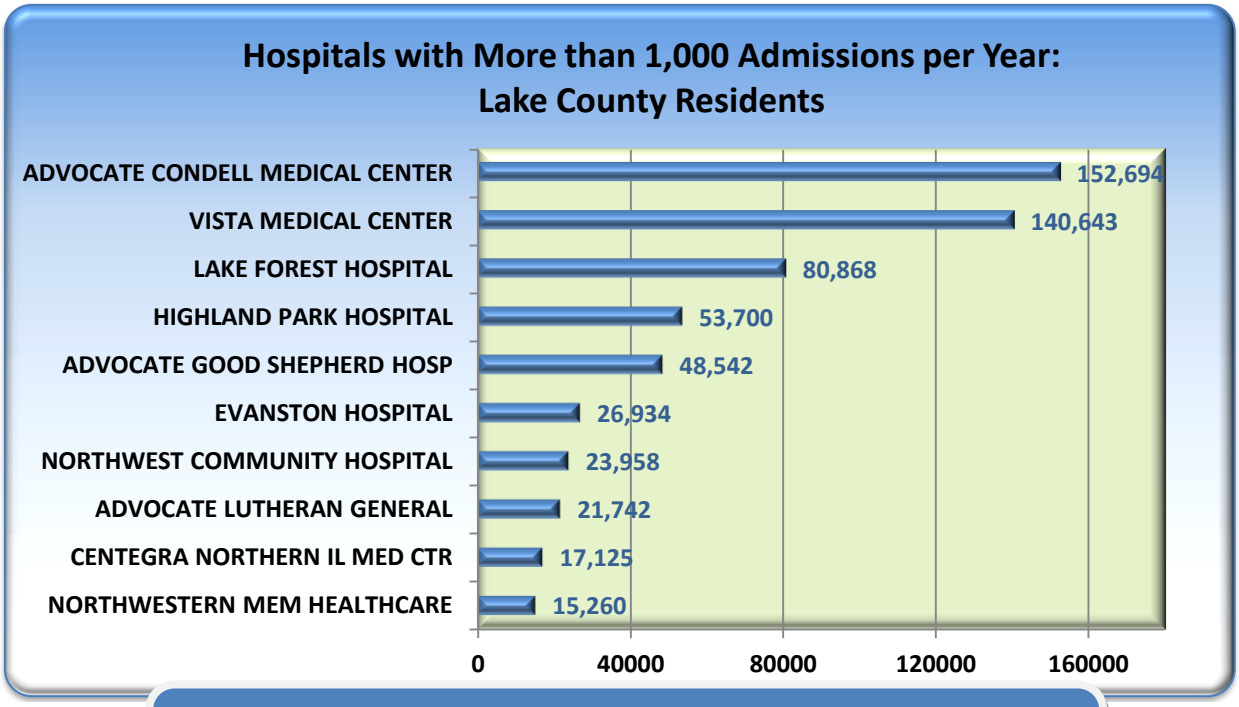


Figure 12.1 Hospitals with More than 1,000 Admissions per Year: Lake County Residents (2001-2009)
Source: IDPH/Illinois Survey of Hospital Discharges (2001-2009).

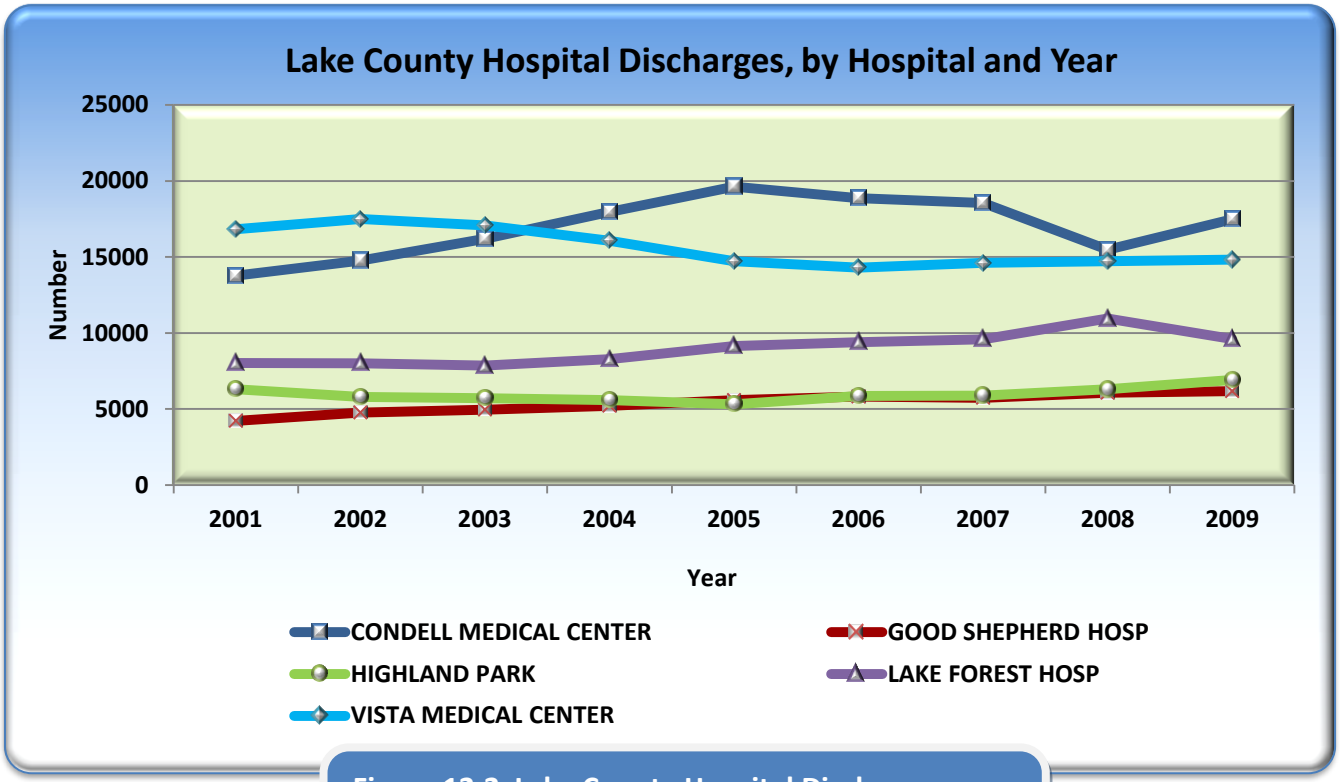
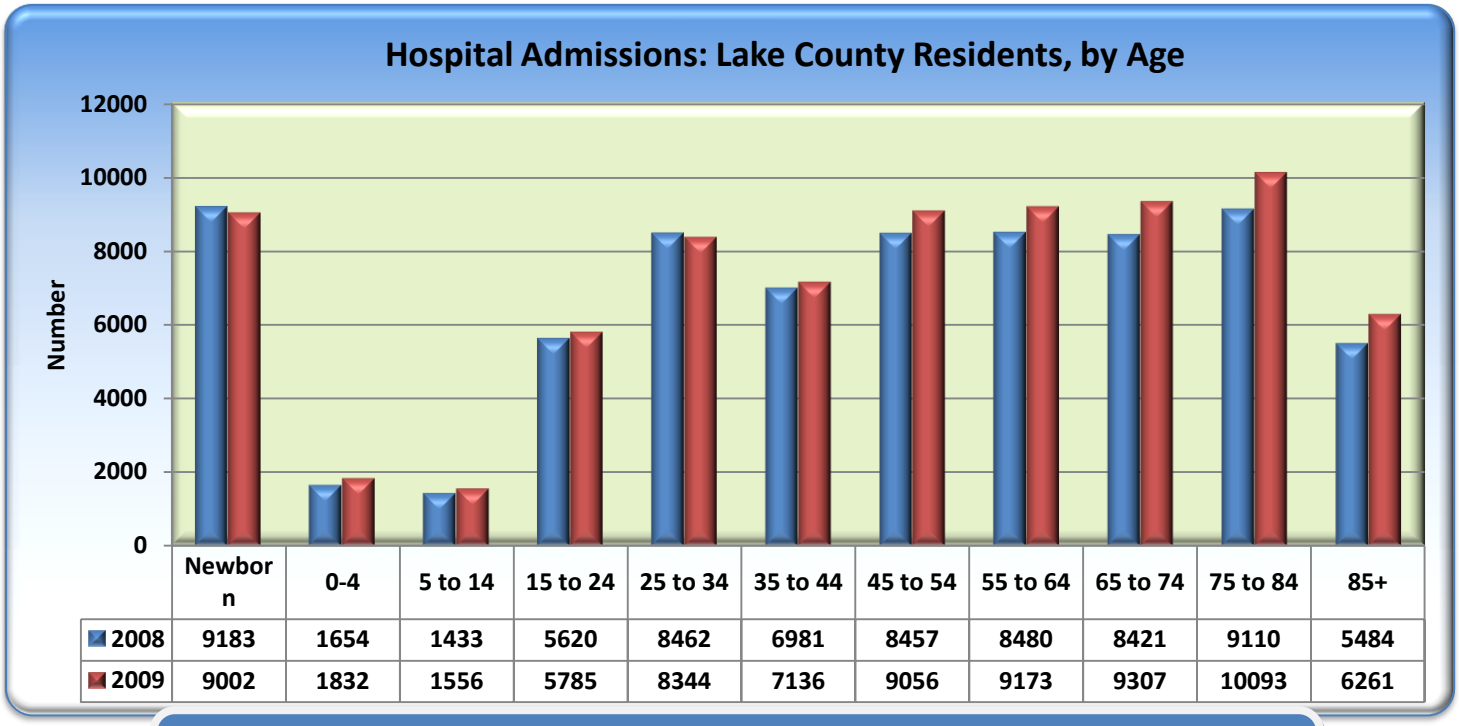
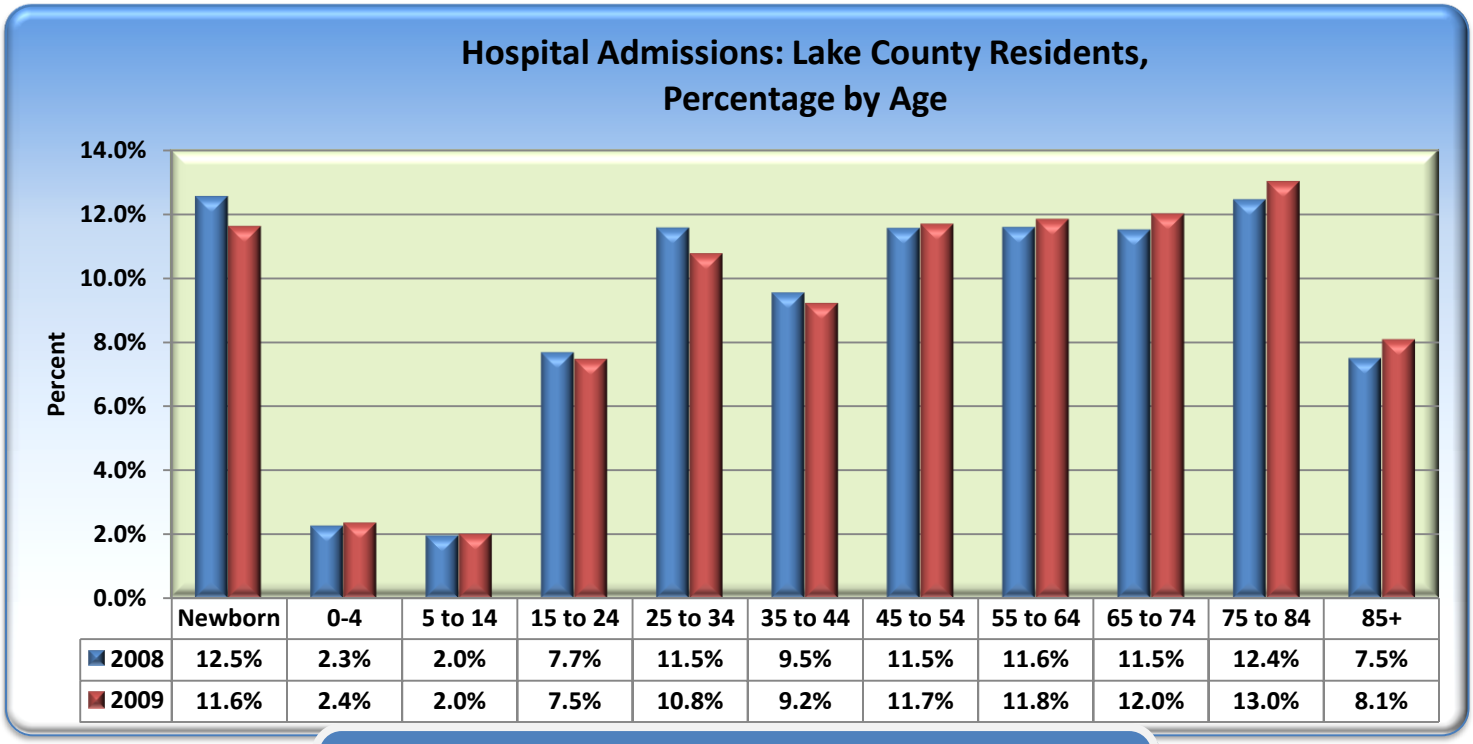


Figure 12.2 Lake County Hospital Discharges, by Hospital and Year (2001-2009)
Source: IDPH/Illinois Survey of Hospital Discharges (2001-2009).



	Newborn	0-4	5 to 14	15 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 to 84	85+
2008	9183	1654	1433	5620	8462	6981	8457	8480	8421	9110	5484
2009	9002	1832	1556	5785	8344	7136	9056	9173	9307	10093	6261

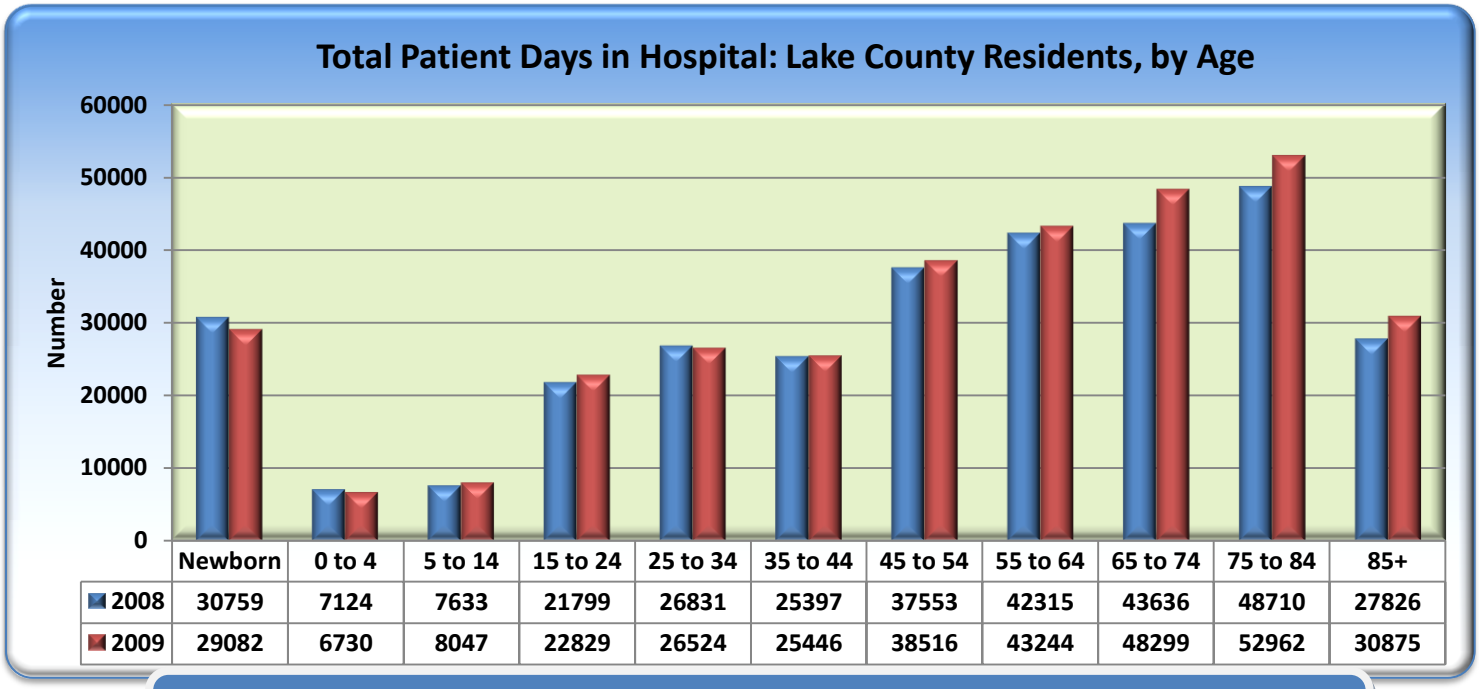
Figure 12.3 Hospital Admissions: Lake County Residents, by Age (2008-2009)
Source: IDPH/Illinois Survey of Hospital Discharges (2008-2009).



	Newborn	0-4	5 to 14	15 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 to 84	85+
2008	12.5%	2.3%	2.0%	7.7%	11.5%	9.5%	11.5%	11.6%	11.5%	12.4%	7.5%
2009	11.6%	2.4%	2.0%	7.5%	10.8%	9.2%	11.7%	11.8%	12.0%	13.0%	8.1%

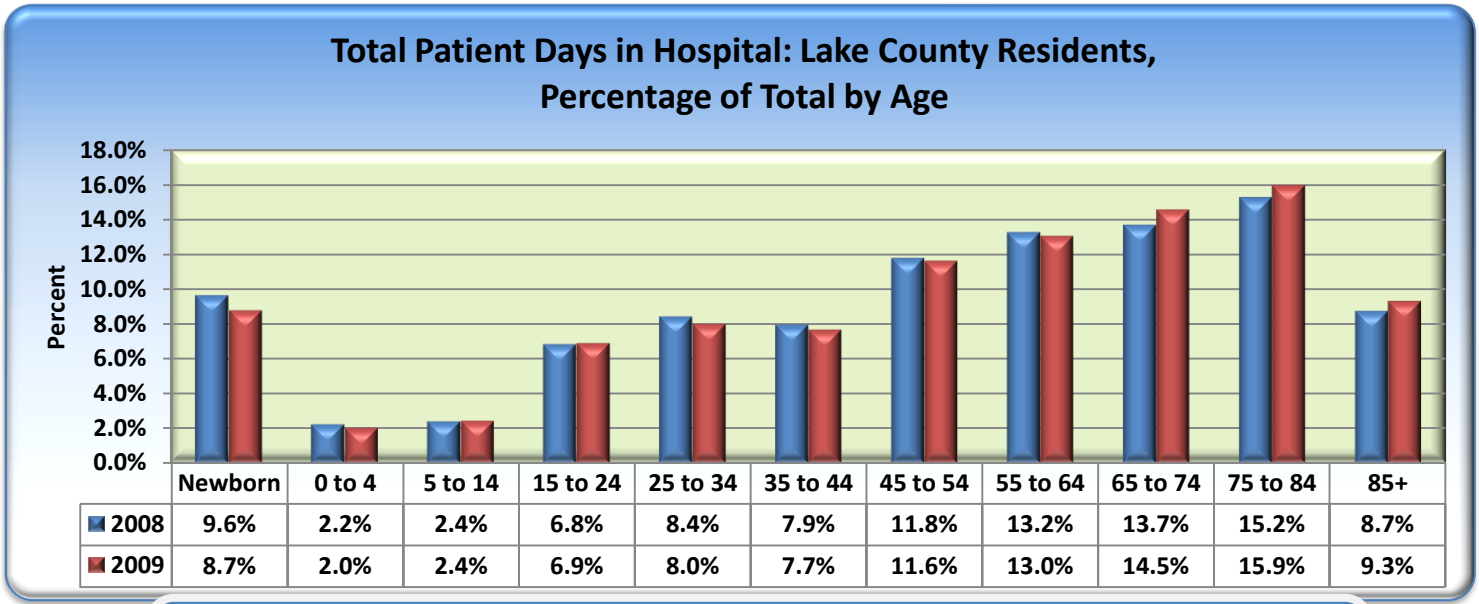
Figure 12.4 Hospital Admissions: Lake County Residents, Percentage by Age (2008-2009)
Source: IDPH/Illinois Survey of Hospital Discharges (2008-2009).

- Newborn patients are approximately 12% of hospital admissions and 9% of the patient days
- Patients age 65+ are 31-33% of the admissions and 38-40% of the patient days.



	Newborn	0 to 4	5 to 14	15 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 to 84	85+
2008	30759	7124	7633	21799	26831	25397	37553	42315	43636	48710	27826
2009	29082	6730	8047	22829	26524	25446	38516	43244	48299	52962	30875

Figure 12.5 Total Patient Days in Hospital: Lake County Residents, by Age (2008-2009)
Source: IDPH/Illinois Survey of Hospital Discharges (2008-2009).



	Newborn	0 to 4	5 to 14	15 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 to 84	85+
2008	9.6%	2.2%	2.4%	6.8%	8.4%	7.9%	11.8%	13.2%	13.7%	15.2%	8.7%
2009	8.7%	2.0%	2.4%	6.9%	8.0%	7.7%	11.6%	13.0%	14.5%	15.9%	9.3%

Figure 12.6 Total Patient Days in Hospital: Lake County Residents, Percentage of Total by Age (2008-2009)
Source: IDPH/Illinois Survey of Hospital Discharges (2008-2009).

Chronic Diseases and Hospitalization

Chronic diseases often develop over a long period of time, but their impact on quality of life can be reduced or mitigated through interventions at every stage of life. The conditions have high prevalence among the 65+ population, but there is increasing evidence that disease processes are being detected earlier in life and even in childhood. They are costly in terms of medical expenditures, decrease the quality of life, are a burden on productivity and on caregivers, and have a disparate impact on non-white racial groups. Alleviating the impact and the burden of chronic disease may not require increasing medical treatment or the intensity of the care provided. In fact the data from analysis of Medicare data suggests that the application of aggressive medical treatment may even have a negative impact on quality outcomes.

Nationally it is estimated that 87% of people age 65 and older have at least one chronic disease, and 67% have two or more chronic conditions. Chronic conditions include arthritis, chronic lung disease, diabetes, heart conditions, cardiovascular disease, chronic pain, depression, cancer, stroke, or any ongoing health condition. Four chronic health conditions: heart disease, cancer, stroke and diabetes cause about two-thirds of all deaths each year. Among Medicare patients, nine out of 10 deaths are associated with nine chronic illnesses:

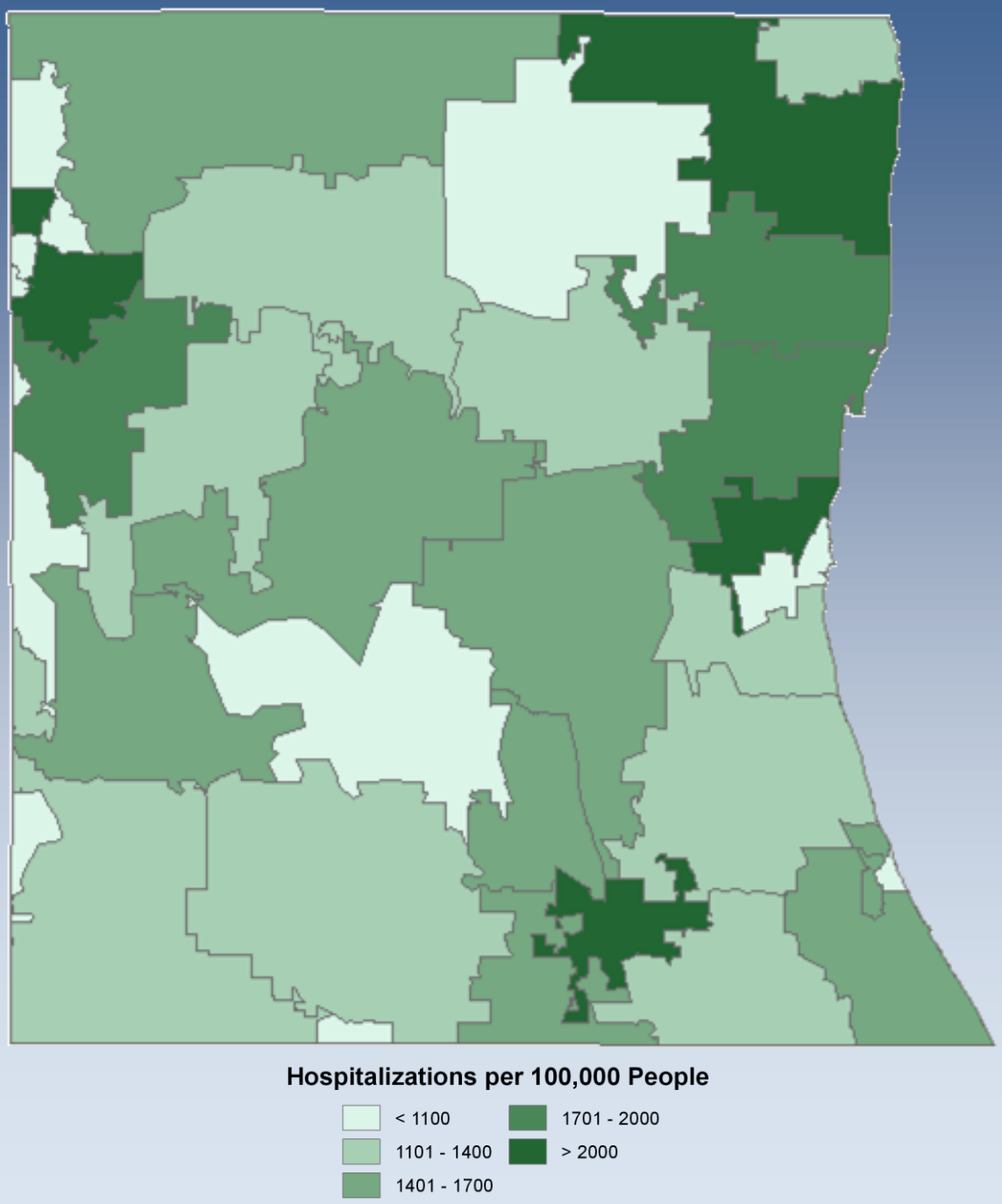
1. Congestive heart failure
2. Chronic lung disease
3. Cancer
4. Coronary artery disease
5. Renal Failure
6. Peripheral vascular disease
7. Diabetes
8. Chronic liver disease
9. Dementia

The Miliken Institute report *An Unhealthy America: The Economic Burden of Chronic Disease* suggests that substantial and accumulating benefits could be derived by making some reasonable changes in our lifestyles and in the care that is provided to patients. The changes recommended in care are that, "more aggressive early detection of disease and slightly faster adoption of improved therapies, and less invasive treatments," and improving the monitoring of chronic conditions to detect and address changes that may exacerbate the underlying disease.

- The number of patients hospitalized with a chronic disease diagnosis increased from 4,873 patients in 2005 to 5,282 in 2009, an 8.4% increase.
- The percent of all patients hospitalized with a chronic disease diagnosis has ranged from 6.5-6.9% per year from 2001 to 2009.
- The percent of charges for all hospitalized patients has ranged from 9.4 to 10.8% for patients with a chronic disease diagnosis.

While county wide health status indicators tend to be favorable for Lake County, the rates of hospitalization for chronic conditions suggests some geographical disparity. The communities that are in the northern part of the county tend to have higher rates of hospitalization for these conditions than the southern part of the county. The map below indicates hospitalization rates for chronic conditions by people age 45 and older, by zip code (see Map 12.1).

Map 12.1 Hospitalization Rates Due to a Chronic Disease: Lake County Residents, Age 45 and older, by Zip code (2008-2009)



Source: IDPH/Illinois Survey of Hospital Discharges (2008-2009).

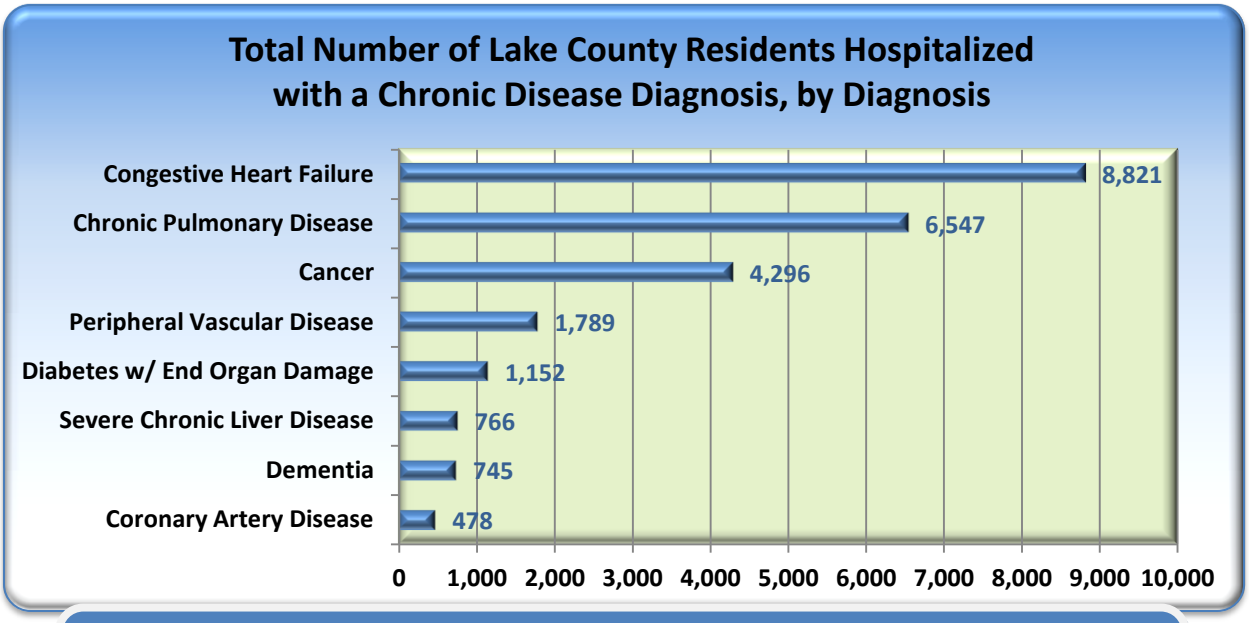


Figure 12.7 Total Number of Lake County Residents Hospitalized with a Chronic Disease Diagnosis, by Diagnosis (2005-2009)
Source: IDPH/Illinois Survey of Hospital Discharges (2005-2009).

Ambulatory Care Sensitive Conditions and Hospitalization

Many hospital admissions are for medical conditions, such as poorly controlled diabetes, asthma, or worsening heart failure, which can be treated in either the inpatient or the outpatient setting. Hospitalization can often be prevented by better outpatient management. Practices that avoid ambulatory care-sensitive admissions reflect better management and monitoring of chronic diseases and more efficient use of resources.

- Ambulatory care sensitive conditions (ACSC) are conditions indicated by specific diagnostic codes that normally should not require admission to a hospital if a patient is receiving adequate ambulatory care and practicing effective self-management.
- ACSC admissions for Chronic Obstructive Pulmonary Disease (COPD), asthma, and urinary tract infections (UTI's) have all been increasing from 2001 through 2009.
- A chart of Lake County resident's asthma admissions by month over a 60 month period of time indicates that seasonality may be a factor in asthma admissions.
    - July and August are frequently the months with the lowest number of patients admitted to a hospital with a diagnosis of asthma
    - September and October are frequently the months with the highest number of patients admitted to a hospital with a diagnosis of asthma.
- A chart of Lake County resident visits to the emergency room for asthma during 2009 and 2010 indicates increase visits in September and October.

A study published in the September 2007 issue of *The Journal of Clinical Immunology* found that, "Large peaks in asthma hospitalization occur 2 to 3 weeks after school return in these 4 countries (England, Scotland, Sweden, and Canada) despite their different summer vacation schedules." By tracking data over 15 years the authors concluded that, "The highly predictable increase in emergency department visits, hospital admissions, and unscheduled physician consultations for childhood asthma in North America every September is uniquely related to school return." This finding, although novel to some interested in reducing the burden of asthma, suggests that some very specific community interventions should be scheduled at specific times during the year as a means of improving control of asthma.

- Contributing factors may be:
    - September and October are the peak ragweed season
    - The return to school may increase exposure to asthma triggers
    - The beginning of cold weather

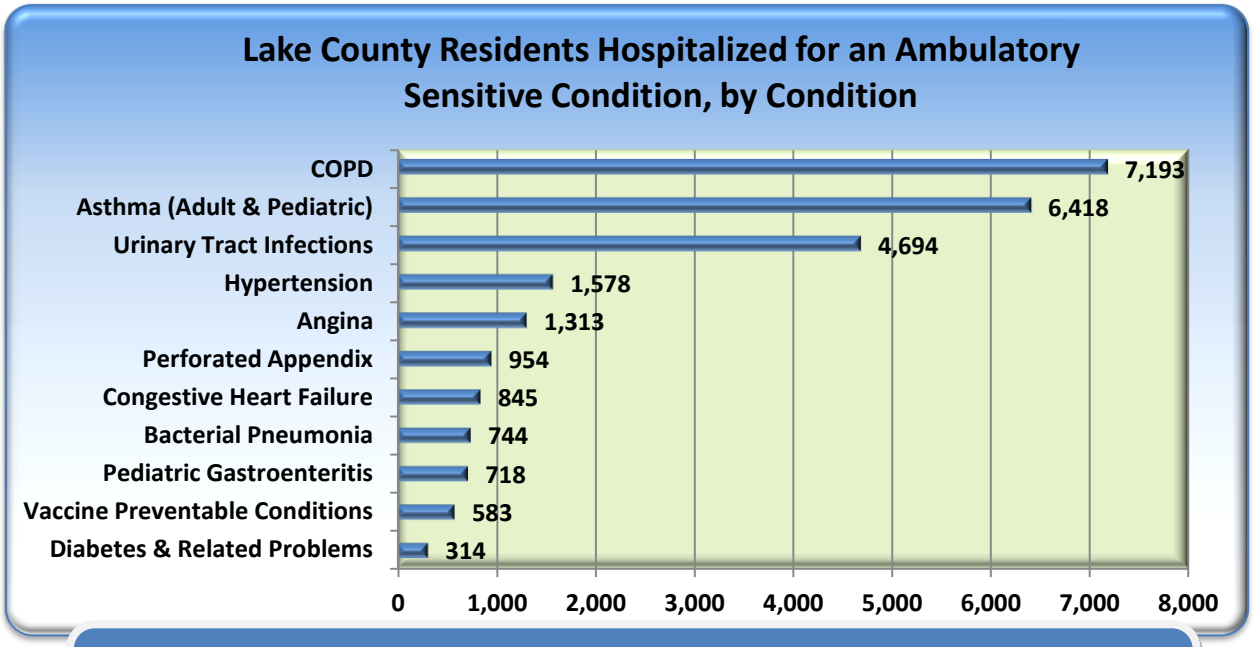


Figure 12.8 Total Number of Lake County Residents Hospitalized for an Ambulatory Sensitive Condition, by Condition (2001-2009)
Source: IDPH/Illinois Survey of Hospital Discharges (2001-2009).

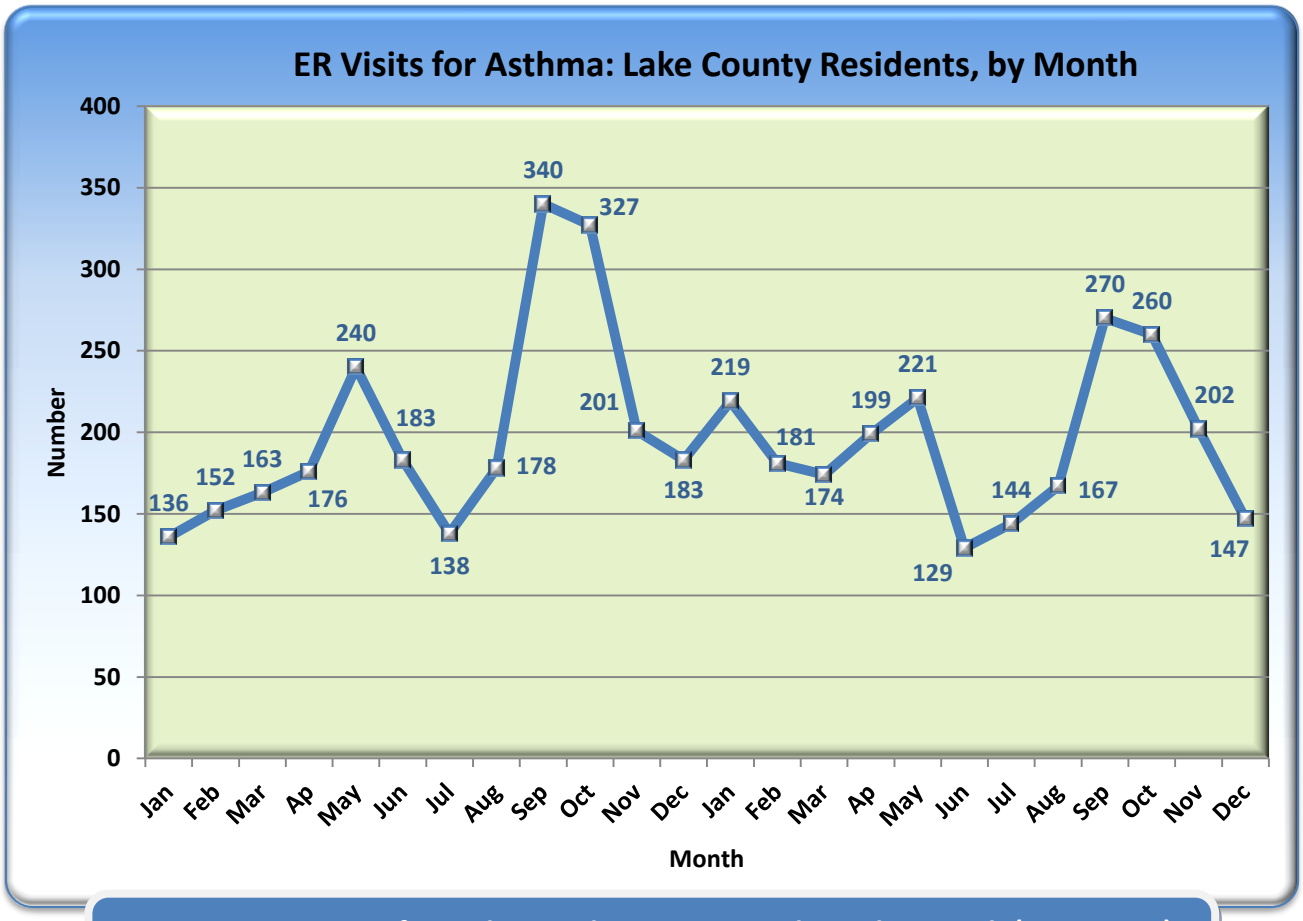


Figure 12.9 ER Visits for Asthma: Lake County Residents, by Month (2009-2010)
Source: IDPH/Illinois Survey of Hospital Discharges (2009-2010).

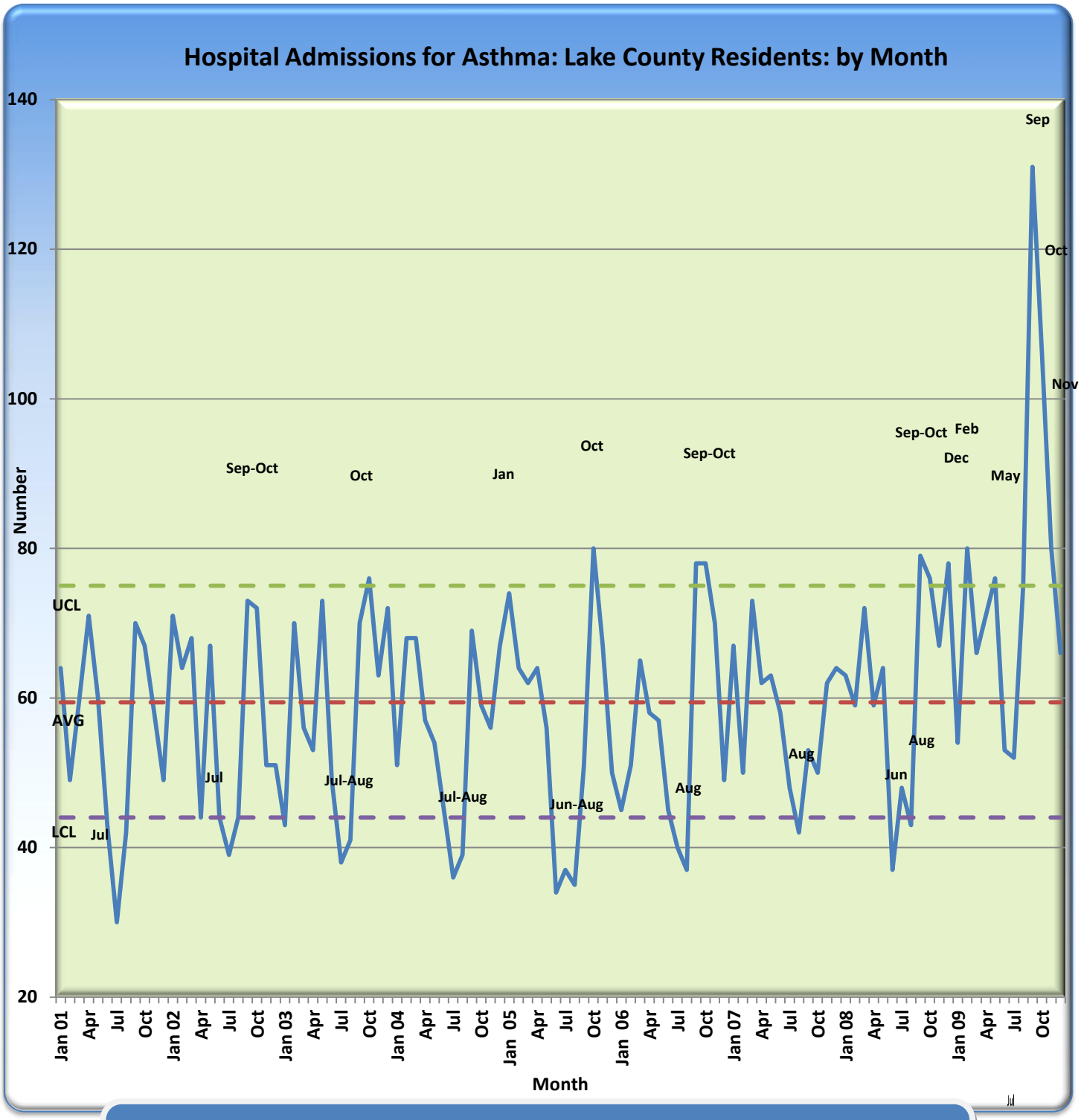
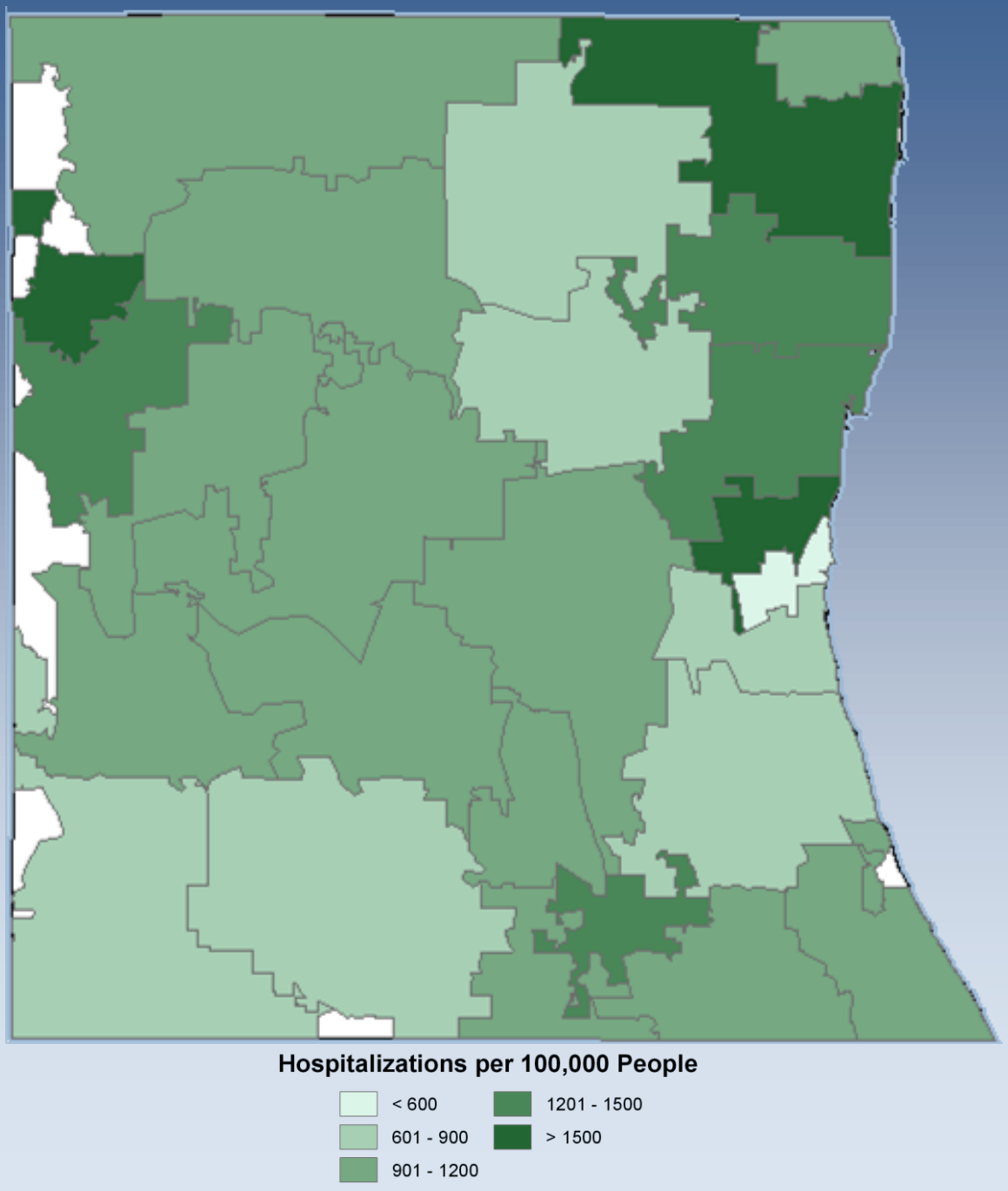


Figure 12.10 Hospital Admissions for Asthma: Lake County Residents, by Month (2001-2009)

Source: IDPH/Illinois Survey of Hospital Discharges (2001-2009).

Like hospitalizations for chronic conditions, county wide health status indicators tend to be favorable for Lake County, however, rates of hospitalization for ambulatory care sensitive conditions (ACSC) suggests some geographical disparity. The communities that are in the northern part of the county tend to have higher rates of hospitalization for these conditions than the southern part of the county (see Map 12.2).

Map 12.2 Hospitalization Rates Due to an Ambulatory Care Sensitive Condition: Lake County Residents, by Zip code (2008-2009)



Source: IDPH/Illinois Survey of Hospital Discharges (2008-2009).